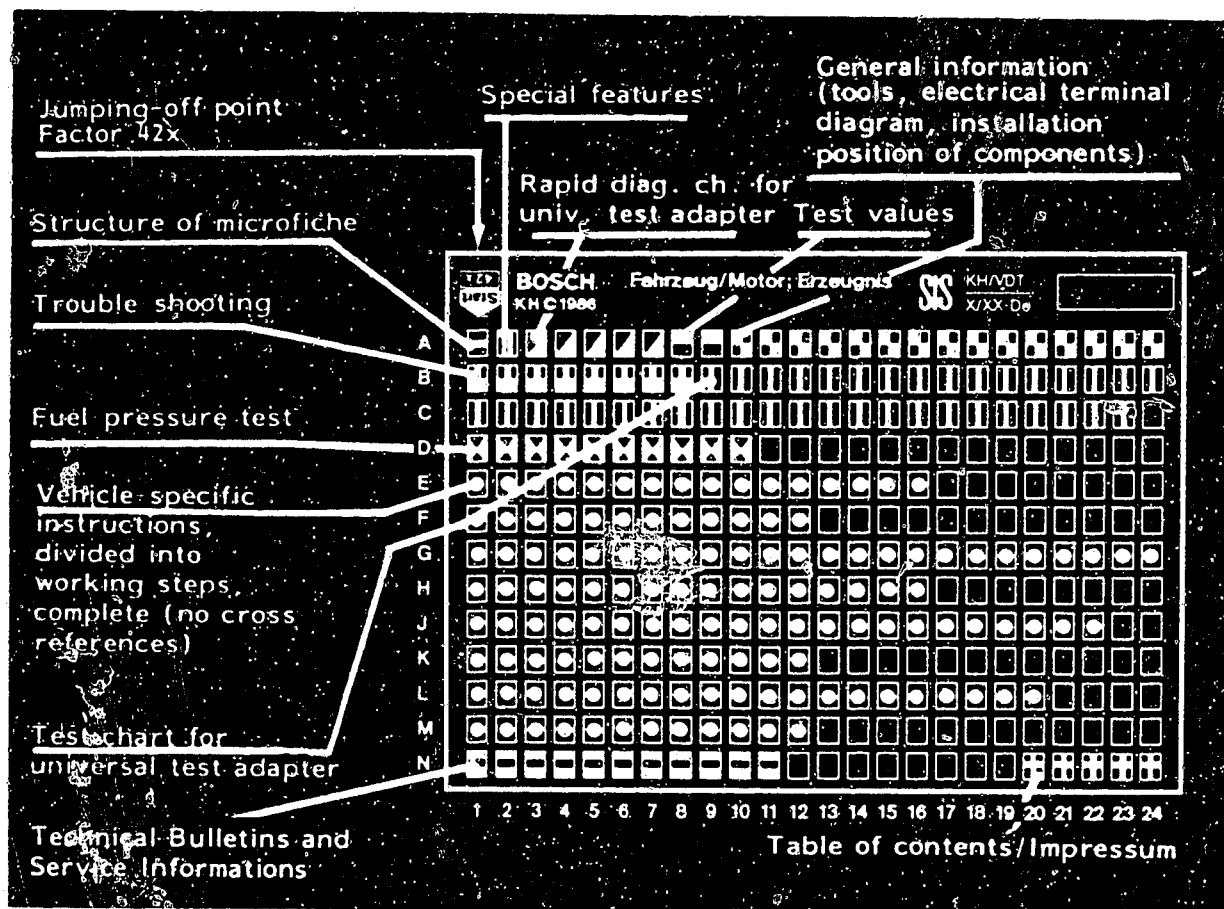


Structure of microfiche



1. Read from left to right
2. Title of microfiche (appears on each coordinate)

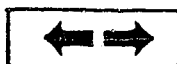
E16	Product/component/test step
	Vehicle/engine

Coordinate

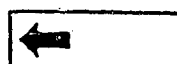
3. Limits of section



Beginning



Mid-section



End



One-page section

4. Purely vehicle-specific passages in the text are marked with a vertical bar.

5. Reference to relevant working steps in the test specifications, e.g. coordinate C6.

C6

A1	Trouble-shooting program	↓
-----------	--------------------------	---

This microcard contains the L-Jetronic trouble-shooting instructions for the following PEUGEOT MODELS valid at the time of printing:

PEUGEOT 505 Ti-Turbo

2.2l / 4-cyl. engine with L-Jetronic

- France version, without charge-air cooler (11.82→ 10.83)
- Europe version, with charge-air cooler (11.83→)
- Sweden, Switzerland version, with charge-air cooler (7.84→)

SPECIAL FEATURES

- L-Jetronic with 35-pin control unit and current-regulated output stage, 5-pin air-flow sensor, 7-pin control relay.
- Auxiliary relay for power supply to control unit and solenoid-operated injection valves
- In-tank pre-supply pump
- Charge-air pressure switch
- Full-load charge-air pressure switch with 10 k Ω resistor.

Vehicles of Sweden and Switzerland version

- Exhaust-gas recirculation to reduce exhaust emissions.



RAPID DIAGNOSTIC CHART FOR THE UNIVERSAL TEST ADAPTER

The rapid diagnostic chart below makes it possible for the experienced L-Jetronic expert to check quickly the electrical portion of the system using the universal test adapter.

The rapid diagnostic chart includes the following:

- Sequence of test steps
- Setting of the V and Ω program switch
- Notes on the operation of the universal test adapter or other components
- Test specifications for the motortester and multi-meter
- Indication of the coordinates for the detailed test and trouble-shooting program in each instance.

When detailed information and instructions are required, in principle, proceed according to the trouble-shooting charts starting from Coordinates B1 / B2.

Note:

The following components and the connecting leads for them are not checked by the universal test adapter in the rapid test:

Auxiliary air device,	connecting leads 34 and 48
Starting valve,	connecting leads 46 and 47
Thermotime switch,	connecting leads 45 and 46
Control relay,	connecting leads 48,76,M5,112A, 112 46A,32A,20C

In-tank pre-supply pump,	connecting leads 76B, M76
Electric fuel pump,	connecting leads 76A, M76



Rapid diagnosis chart for universal test adapter

Test step	Switch position		Measurement	Control-unit plug between terminals	Remarks	Test specifications (reading)	For trouble-shooting see Coordinates
	V	Ω					
1	3	-	Voltage from ignition/starting switch term. 50	4 and 5	Shift gear to neutral, start	8 ... 15 V	B 11
2	5	-	Voltage pulses from ignition coil term. 1	1 and 5	Shift gear to neutral, start	Ignition pulses on oscilloscope	B 13
3	6	-	Voltage from auxiliary relay term. 10	10 and 5	Ignition "ON"	8 ... 15 V	B 15
4	7	-	Voltage from solenoid-operated injection valve 1 term. 15	15 and 5	Ignition "ON"	8 ... 15 V	B 17
5	8	-	Voltage from solenoid-operated injection valve 2 term. 33	33 and 5	Ignition "ON"	8 ... 15 V	B 19
6	9	-	Voltage from injection valve 3 term. 32	32 and 5	Ignition "ON"	8 ... 15 V	B 21
7	10	-	Voltage from injection valve 4 term. 14	14 and 5	Ignition "ON"	8 ... 15 V	B 23
8	12	-	Voltage from auxiliary relay term. 29	29 and 5	Ignition "ON"	8 ... 15 V	C 1
9	↓	6	Resistance of potentiometer (wiper) in air-flow sensor term. 7	7 and 5(6)	Deflect sensor flap as far as it will go	80 ... 600 Ω	C 3
10	↓	7	Resistance of potentiometer (total resistance) in air-flow sensor term. 8	8 and 5(6)	---	260 ... 520 Ω	C 5

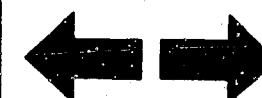
A4

Rapid diag.chart f.universal test adapter
Peugeot 505 Ti-Turbo



A5

Rapid diag. chart f.universal test adapter
Peugeot 505 Ti-Turbo



Rapid diagnosis chart for universal test adapter

Test step	Switch position		Measurement	Control-unit plug between terminals	Remarks	Test specifications (reading)	For trouble-shooting see Coordinates
	V	Ω					
11	↓	8	Series resistance of potentiometer (total resistance) in air-flow sensor term. 9	9 and 5(6)	---	400 ... 800 Ω	C 7
12	↓	9	Resistance of idle contact in throttle-valve switch term. 2	2 and 18	Accel. in rest posn.: Accelerator slightly pressed	0 ... 10 Ω $\infty \Omega$	C 9
13	↓	10	Resistance of full-load contact in throttle-valve switch term. 3	3 and 18	Apply approx. 0.2 bar gauge pressure to charge-air pressure full-load switch. Accelerator in full-load position: Accelerator in rest position:	9 ... 11 k Ω $\infty \Omega$	C 11
14	↓	11	Resistance of temperature sensor NTC I in air-flow sensor term. 27	27 and 5	At +15°C...+30°C: At approx. +80°C:	1.45... 3.3 k Ω 280 ... 360 Ω	C 13
15	↓	12	Resistance of temperature sensor NTC II term. 13 (engine temperature)	13 and 5	At +15°C...+30°C: At approx. +80°C:	1.3 ... 3.6 k Ω 250 ... 390 Ω	C 15
16	↓	13	Resistance of output stage ground term. 16	16 and 5	---	0 ... 10 Ω	C 17
17	↓	14	Resistance of output stage ground term. 17	17 and 5	---	0 ... 10 Ω	C 19
18	↓	16	Resistance of charge-air pressure switch term. 22	26 and 5	At atmos. pressure Apply 1.2 ... 1.5 bar gauge pressure to charge-air pressure switch	$\infty \Omega$ 0 ... 10 Ω	C 21

A6

Rapid diag.chart f.universal test adapter
Peugeot 505 Ti-Turbo



A7

Rapid diag.chart f.universal test adapter
Peugeot 505 Ti-Turbo



TEST SPECIFICATIONS

Pressure regulator

- Fuel pressure: 2.3...2.7 bar

D1

Electric fuel pump

- Delivery at return: min. 750 cm³/30s
- Terminal voltage under load: min. 12 V

J9

In-tank pre-supply pump

- Delivery: min. 850 cm³/30s

E7

Thermo-time switch (35°/8s):

● Electrical internal resistance at	Between term. "G" + ground	Between term. "W" + ground	Between term. "G" + "W"
Ambient temperature (below + 30°C)	25...40Ω	0Ω	25...40Ω
Engine at op. temp. (above +40°C)	50...80Ω	100...160Ω	50...80Ω

Start valve

- Electrical internal resistance: 3.5...4.5 Ω
- Leaks: max. allowable 1 drop/min.

E3

Auxiliary-air device

- Electrical internal resistance: 40...75 Ω

E9

Temperature sensor

● Electrical internal resistance at	NTC I air temperature	NTC II engine temperature
Ambient temperature (+15°C...+30°C)	1.45...3.3 kΩ	1.3... 3.6 kΩ
Engine at op. temp. (approx. +80°C):	280 ... 360 Ω	250 ... 390 Ω

C13**A8**

Test specifications

Peugeot 505 Ti-Turbo



Test specifications (continued)

Air-flow sensor

- Resistance between:

Term. 6 and term. 8: 260...520 Ω

Term. 6 and term. 7: (sensor flap
fully deflected) 80...1000 Ω

Term. 8 and term. 9: 140...280 Ω

E11

Solenoid-operated injection valve

- Electrical internal

resistance at +20°C: 2.0...3.0 Ω

G13

Charge-air pressure switch

- Resistance

at atmospheric pressure: $\infty\Omega$

at 1.2...1.5 bar gauge pressure: 0Ω

C21

Full-load charge-air pressure switch

- Resistance

at atmospheric pressure: $\infty\Omega$

at approx. 0.2 bar gauge pressure: 0Ω

C11

Idle adjustment: * engine at operating temperature,
approx. +80°C

G5

- Idle speed: 850...950 min⁻¹

- CO concentration: 0.5...1.5 vol.%

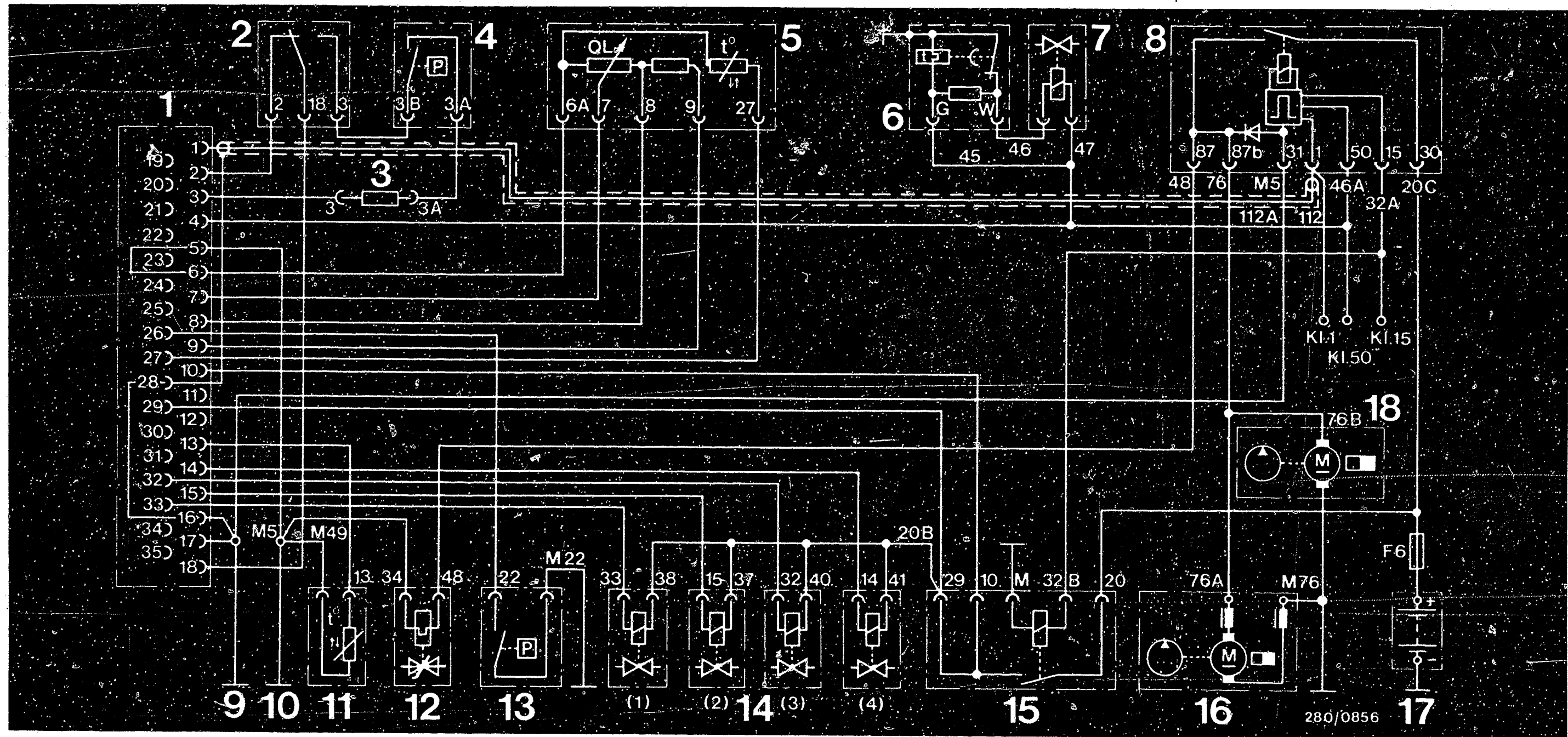
* On vehicles of Sweden and Switzerland version,
render exhaust-gas recirculation system inoperative
for the idle adjustment.

See equipment and Autodata microcards for settings for
ignition, valve clearance and other engine data.

A9Test specifications

Peugeot 505 Ti-Turbo





ELECTRICAL TERMINAL DIAGRAM

- 1 = Control-unit plug
- 2 = Throttle-valve switch
- 3 = Resistor 10 k Ω
- 4 = Full-load charge-air pressure switch
- 5 = Air-flow sensor
- 6 = Thermo-time switch
- 7 = Start valve

- 8 = Control relay
- 9 = Ground terminal - output stage
- 10 = Ground terminal - electronics
- 11 = Temperature sensor II (engine temperature)
- 12 = Auxiliary-air device
- 13 = Charge-air pressure switch

- 14 = Injection valves
- 15 = Auxiliary relay
- 16 = Electric fuel pump
- 17 = Battery
- 18 = In-tank pre-supply pump

A10

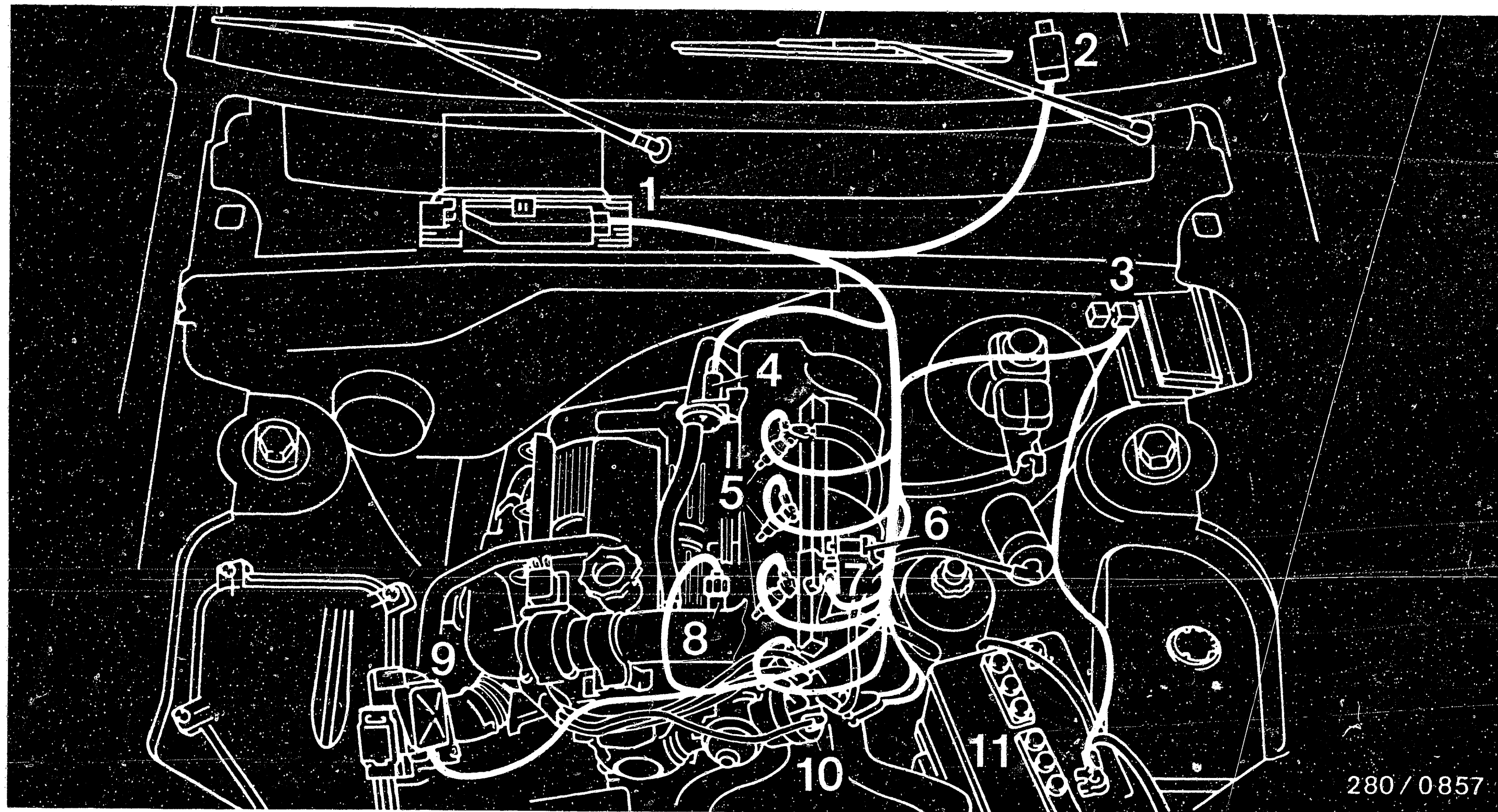
Electrical terminal diagram
Peugeot 505 Ti-Turbo



A11

Electrical terminal diagram
Peugeot 505 Ti-Turbo





280 / 0857

Diagram of electrical leads and arrangement of the individual components

1 = Control unit
2 = Control relay
3 = Auxiliary relay
4 = Auxiliary-air device

5 = Electric fuel-injection valves
6 = Starting valve
7 = Throttle valve switch
8 = Charge-air pressure switch

9 = Air -flow sensor
10 = Ignition distributor
11 = Battery

A12

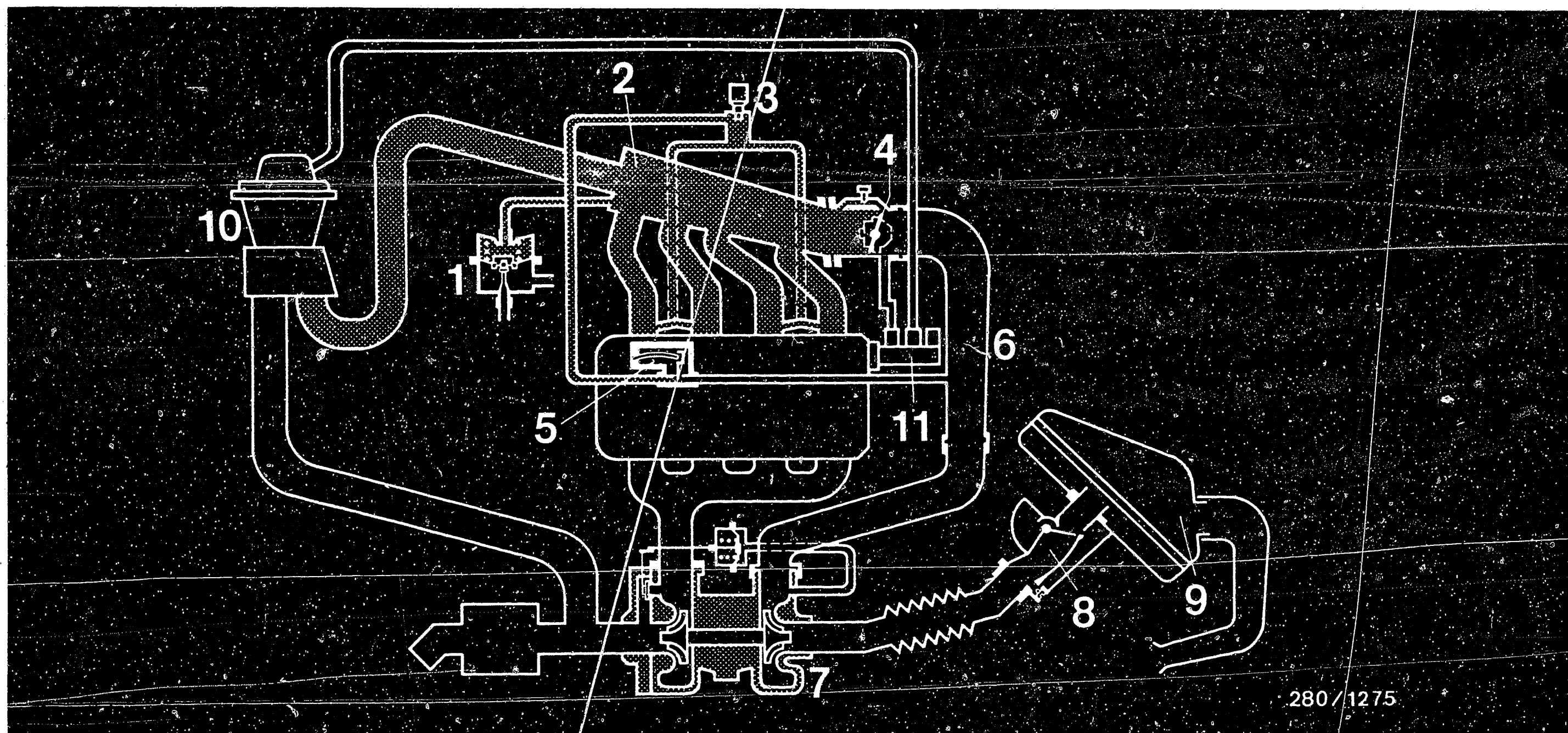
Electrical lead diagram
Peugeot 505 Ti-Turbo



A13

Electrical lead diagram
Peugeot 505 Ti-Turbo





Diagrams of air and fuel lines

• Diagram of air lines

——— Atmospheric pressure
 [Stippled pattern] Intake manifold pressure

1 = Pressure regulator
 2 = Intake manifold
 3 = Starting valve
 4 = Throttle valve
 5 = Auxiliary-air device
 6 = Air pipe

7 = Exhaust gas turbo-charger
 8 = Air-flow sensor
 9 = Air filter

• Exhaust-gas recirculation
 10 = EGR valve
 11 = Thermo-valve

A14

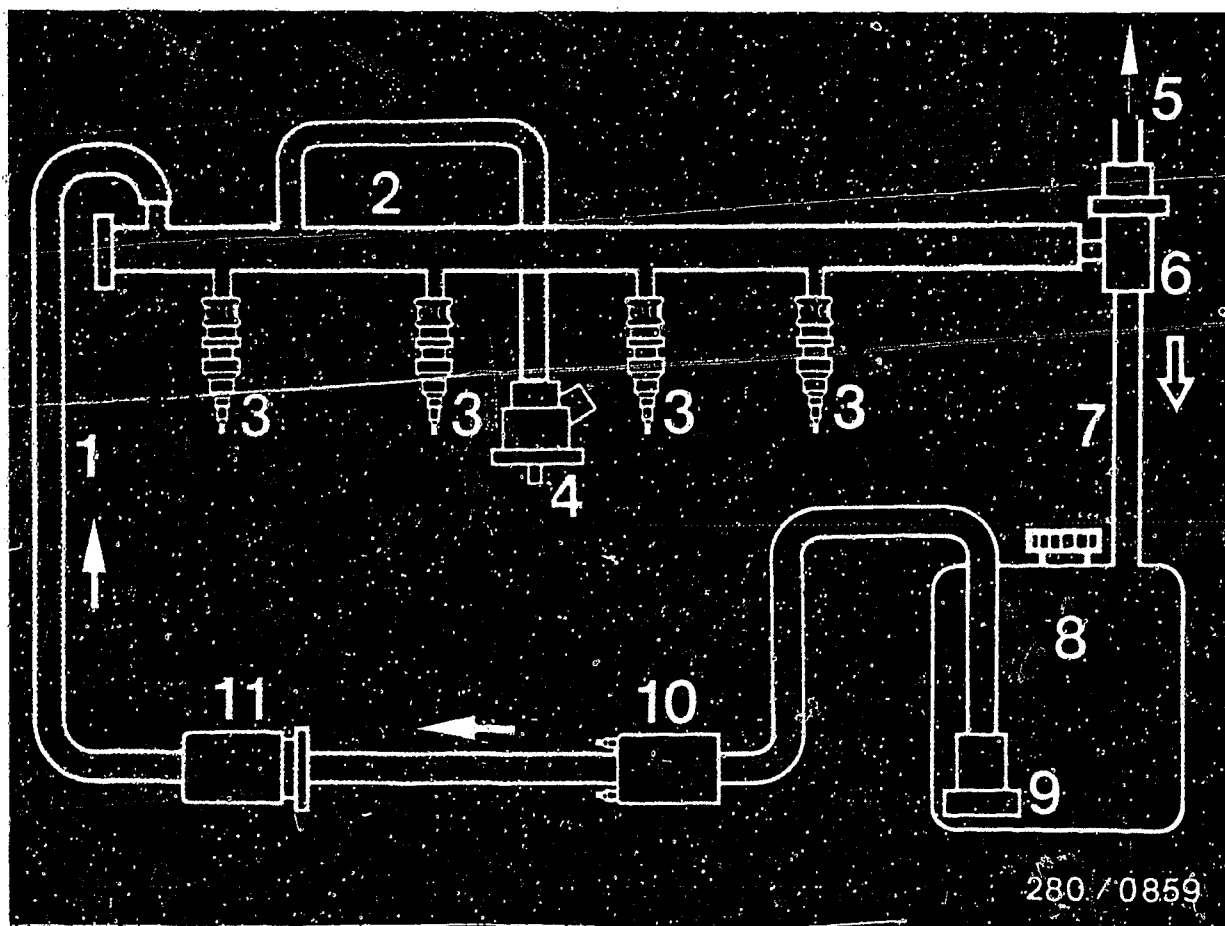
Diagrams of air and fuel lines
Peugeot 505 Ti-Turbo



A15

Diagrams of air and fuel lines
Peugeot 505 Ti-Turbo





● Fuel line diagram

—— no pressure

▨ fuel pressure

1 = Supply line
2 = Fuel distributor
3 = Electric fuel-inj.
valves

4 = Starting valve
5 = Intake manifold
pressure connection

6 = Pressure regulator

7 = Return line

8 = Fuel tank

9 = In-tank pre-supply pump

10 = Electric fuel pump

11 = Fuel filter

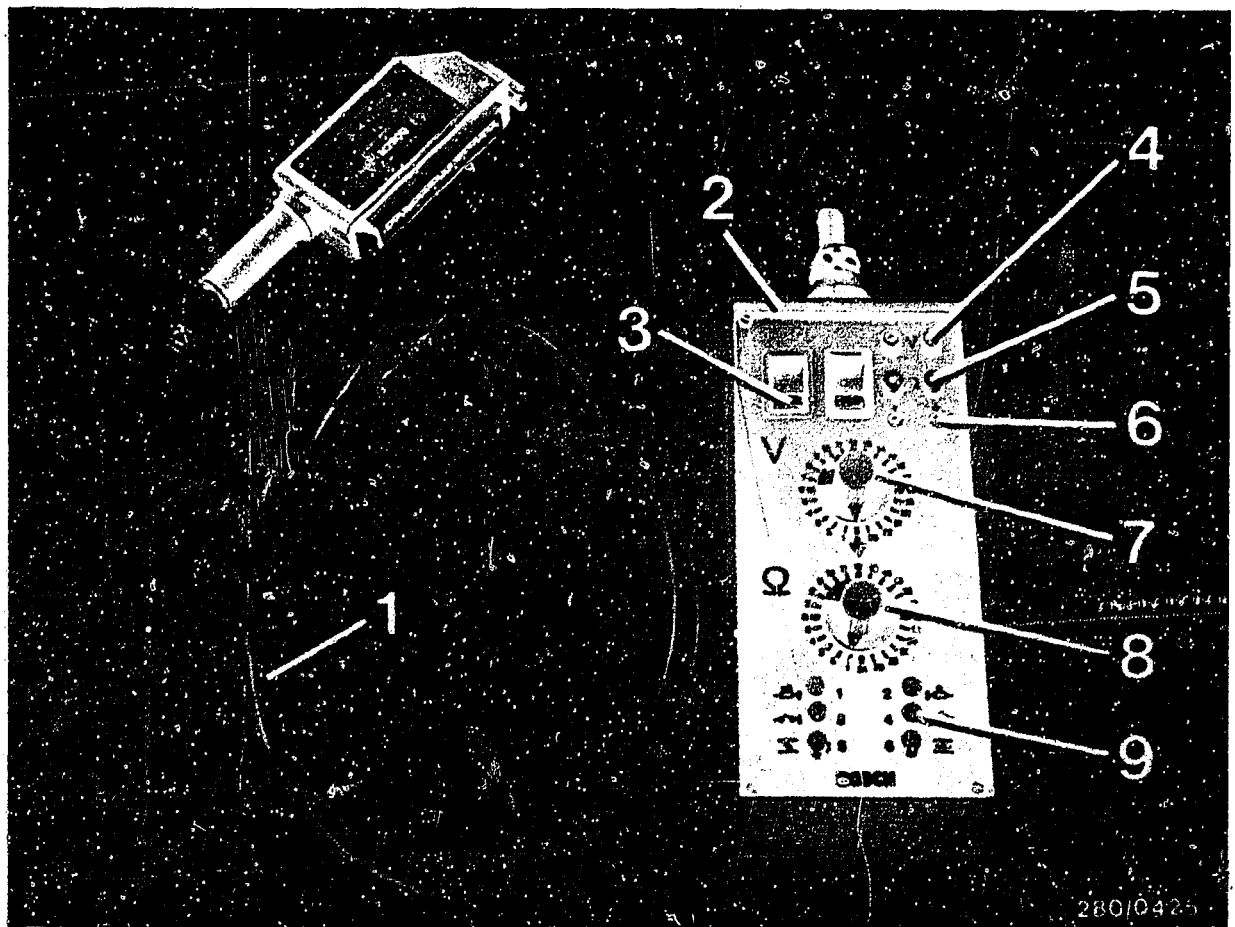


TEST EQUIPMENT AND TOOLS

<u>Name</u>	<u>Designation</u>	<u>Part No.</u>
Univ.test adapter	ETT 018.01	0 684 101 801
Adapter lead		1 684 463 129
Motortester	e.g. MOT 002.00 MOT 300 MOT 400	0 684 000 200 0 684 000 300 0 684 000 400
Test lead		1 684 463 093
Exhaust gas analyzer calibrated	e.g. ETT 008.00 ETT 008.04 ETT 008.05	0 684 100 800 0 684 100 804 0 684 100 805
Pressure tester		KDJE-P 100 (KDEP 1034 no longer avail.)
Connector		KDJE-P100/14
Electric tester or multimeter, e.g.	ETE 014.00 Philips Miselco Fa. Fluke	0 684 101 400 PM 2517 X Master 50K Multimeter 75
Hexagon screwdriver AF 5	commercially available	e.g. Hahn & Kolb no. 52138
Electric fuel-injection valve		0 280 150 200
Set of parts		1 287 010 704
Silicon grease	Ft 2 v 1	5 700 080 125

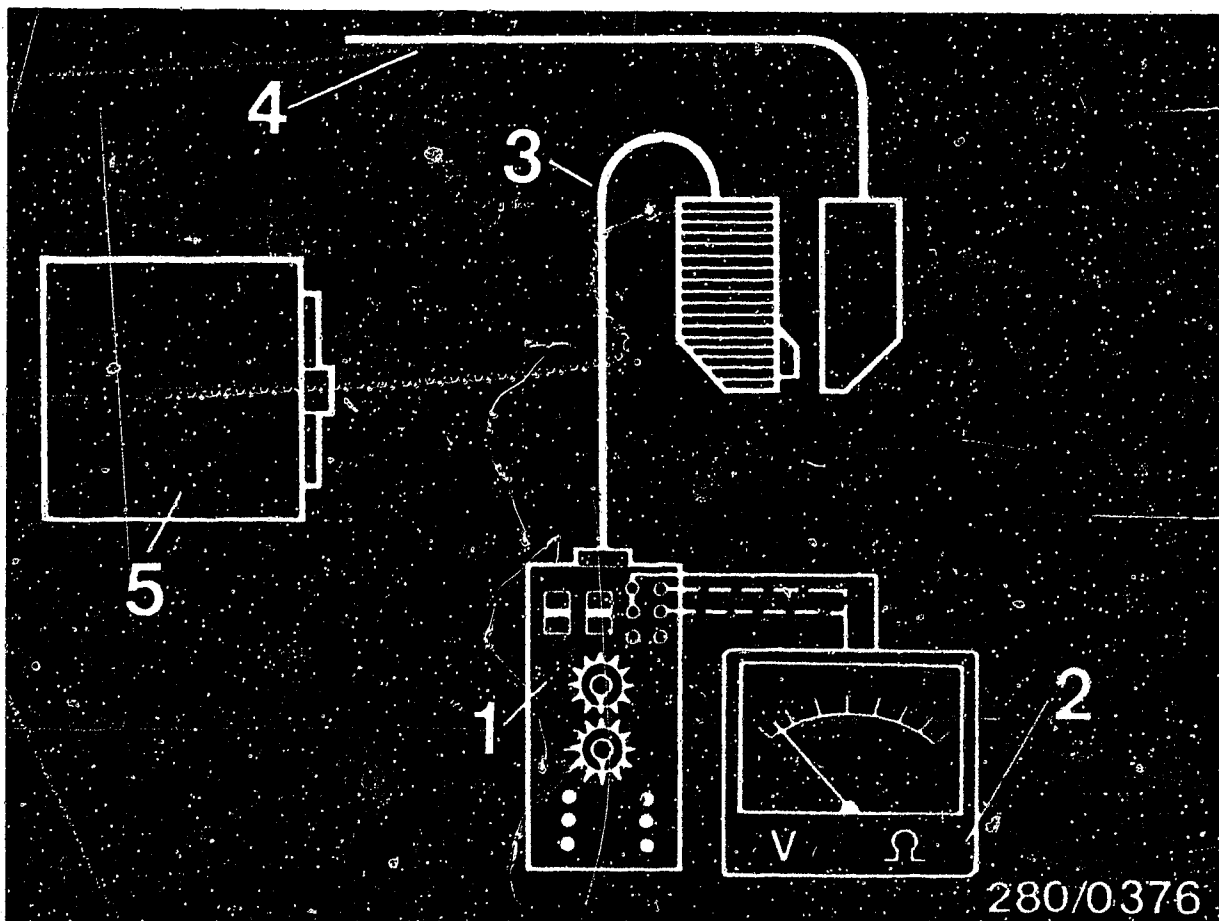
Use suitable commercially-available tools for taking off and pressing on the idle-CO-antitamper device of the air-flow sensor.





Universal test adapter with adapter lead for the L-Jetronic

- 1 = Adapter lead (Part No.: 1 684 463 129)
- 2 = Univ. test adapter (Part No.: 0 684 101 801)
- 3 = Test wells (for motortester)
- 4 = Test sockets (for measuring voltage)
- 5 = Test sockets (for measuring resistance)
- 6 = Test sockets (not yet assigned)
- 7 = Program switch "V"
- 8 = Program switch "Ω"
- 9 = Pushbuttons (not used for L-Jetronic)



- | | |
|-------------------------------|-------------------------------|
| 1 = Universal test adapter | 4 = L-Jetronic wiring harness |
| 2 = Multimeter | |
| 3 = Adapter lead (L-Jetronic) | 5 = L-Jetronic control unit |

General:

Disconnect the control unit plug of the Jetronic wiring harness from the control unit, and connect it to the plug of the adapter lead.

Note:

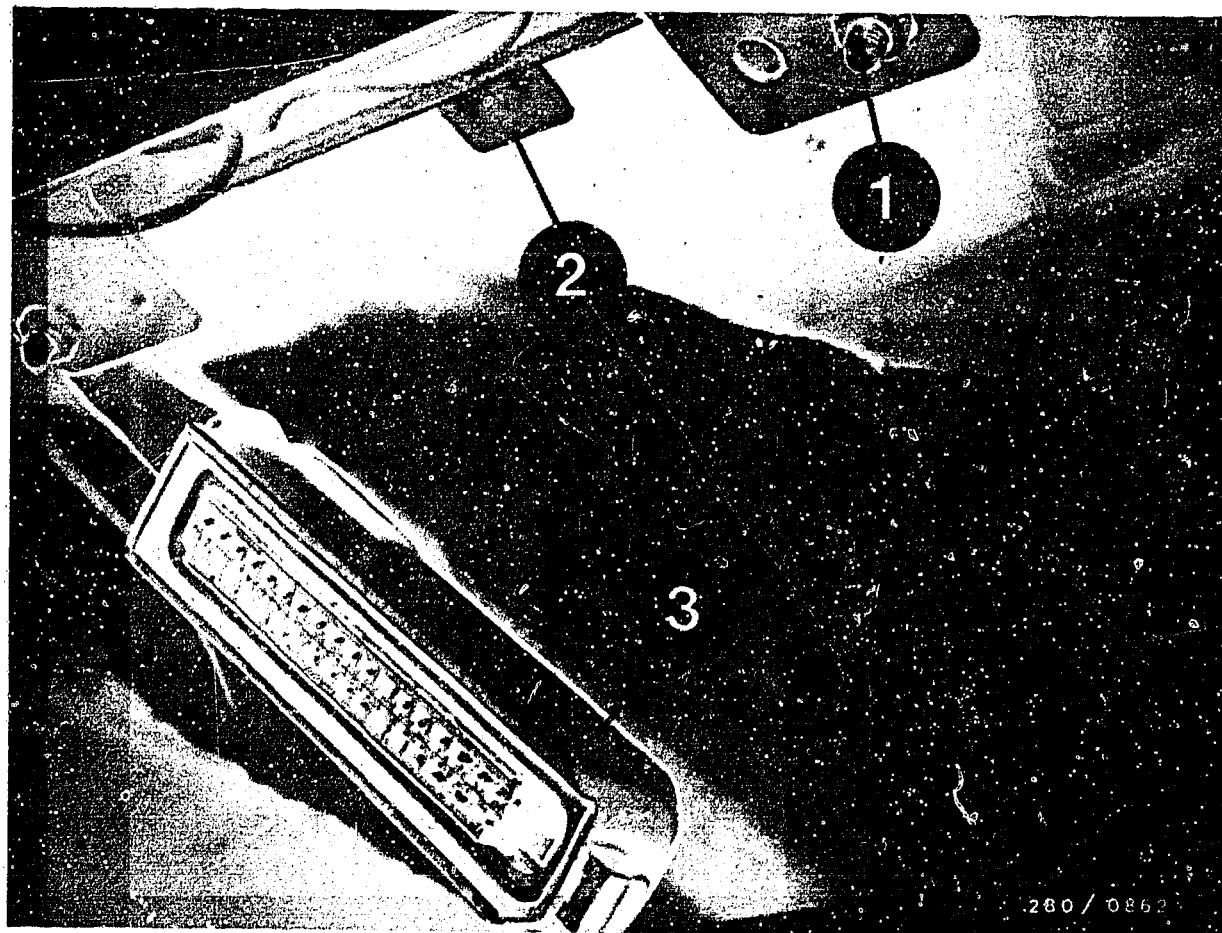
Disconnect and connect the plug for the universal test adapter only with the ignition switched off.

Testing:

For testing connect a multimeter with R_i min. 20 k Ω /V to the test adapter.

The signal from Term. 1 of the ignition coil can be measured via the special input using a motortester.





- 1 = Fastening screws
- 2 = Control unit
- 3 = 35-pole control unit plug

INSTALLATION POSITION OF THE COMPONENTS

- Control unit in the passenger compartment

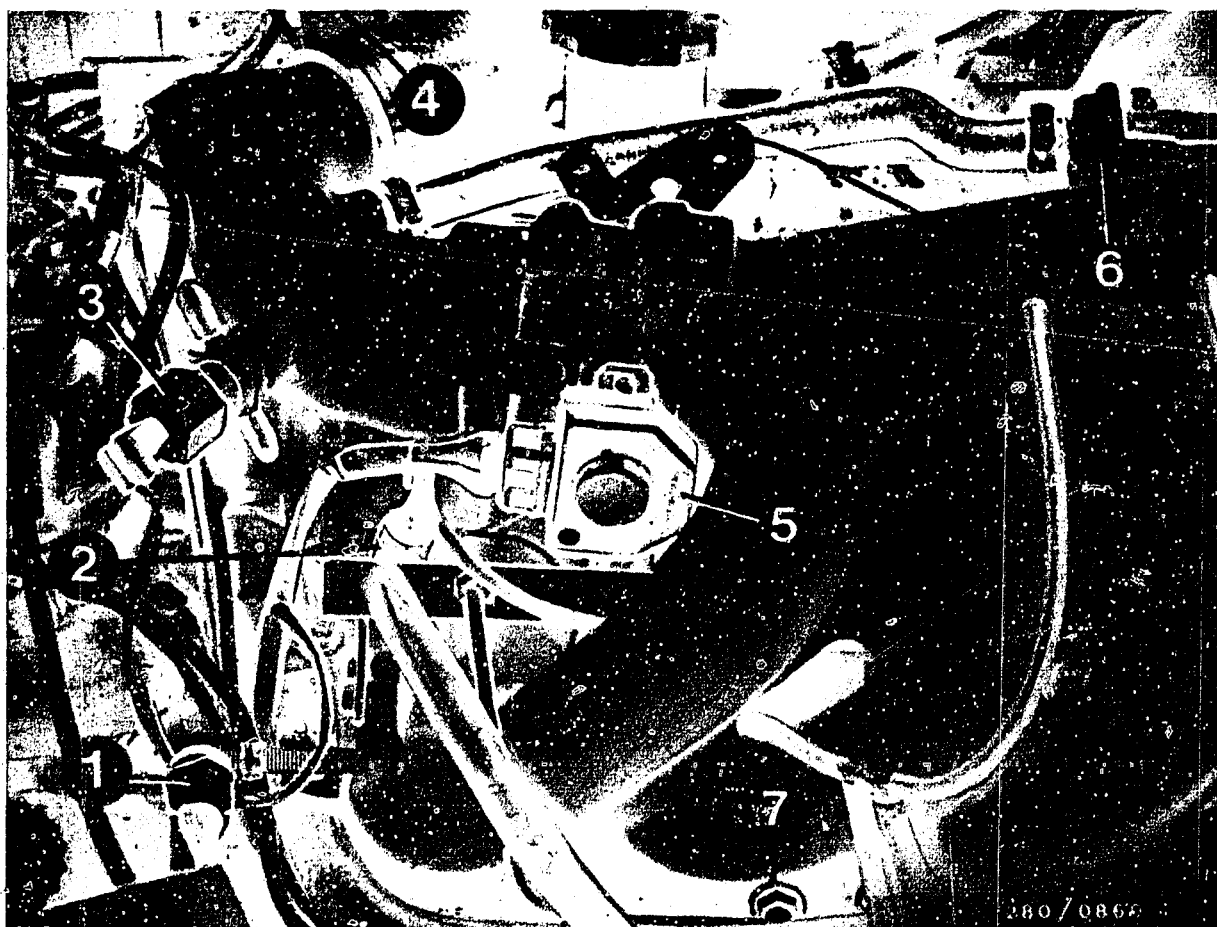
All information on installation location is always given looking in the direction of forward vehicle travel.

The control unit is located above the glove compartment on the front passenger's side of the passenger compartment.

Swing the glove compartment down, disconnect the light at the front, and swing backwards.

To connect the universal test adapter, unplug the control unit plug (35-pole). To do so, press the catch in the direction shown by the arrow.



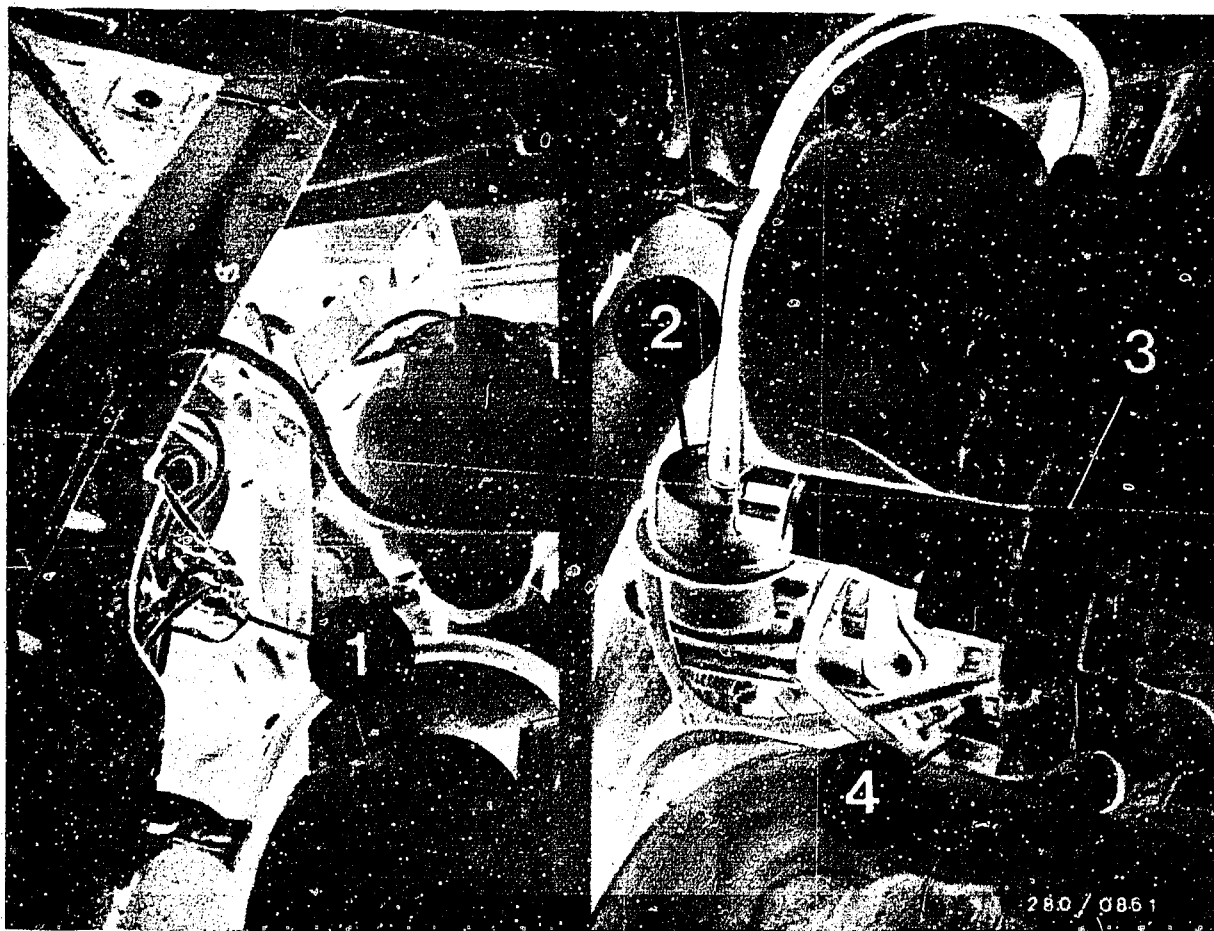


● Arrangement of the components on the engine

- 1 = Temperature sensor II
- 2 = Electric fuel-injection valves
- 3 = Charge-air pressure switch
- 4 = Air-flow sensor
- 5 = Throttle valve switch
- 6 = Auxiliary-air device
- 7 = Starting valve

The thermotime switch is located under temperature sensor II.

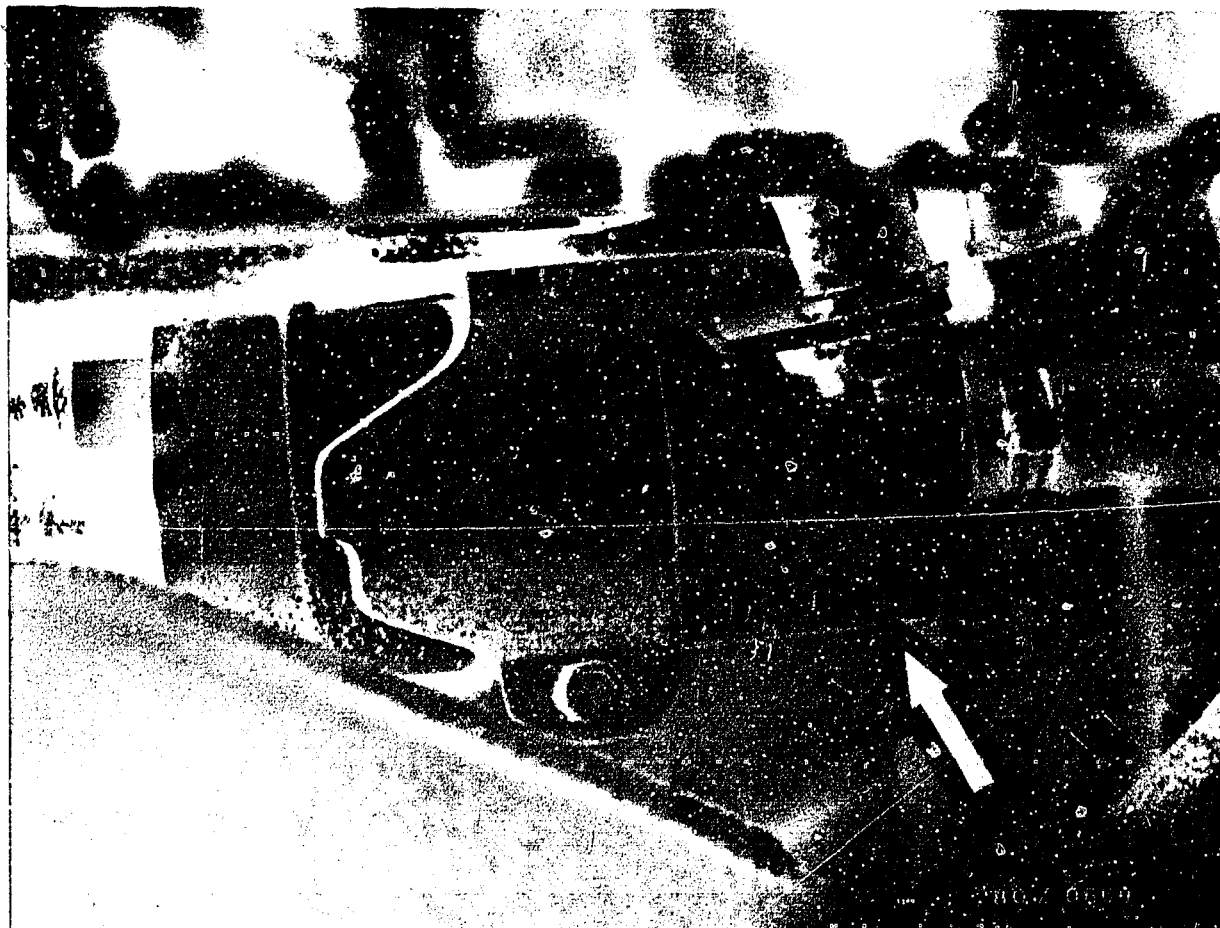




- 1 = Ground terminals
- 2 = Pressure regulator
- 3 = Auxiliary-air device
- 4 = Electric fuel-injection valve

- Control relay: located on the left, under the dash-board.
- Auxil. relay: in the engine compartment, on the bulk-head at the left, the outer relay.





● Components of the fuel supply system

The electric fuel pump (arrow) is fastened to a bracket behind the differential on the bottom of the vehicle. The fuel filter is located on the left, in front of the rear axle.

The in-tank pre-supply pump is combined with the fuel gauge sensor and is accessible via a central covered opening in the trunk compartment.



IMPORTANT GENERAL INSTRUCTIONS

- Never start the engine without the battery firmly connected.
- Jumping for start with more than 16 V or with a quick charger is not allowed!
- Never disconnect the battery from the vehicle electric system with the engine running.
- When quick-charging the battery, disconnect the battery from the vehicle electric system.
- Take the control unit out at temperatures above +80°C (paint-drying ovens).
- Make certain all connecting plugs on the wiring harness are properly seated.
- Never disconnect or connect control unit plug with the ignition switched on.
- During a compression pressure test, interrupt the power supply by disconnecting the control relay. That causes the voltage supply to the L-Jetronic and the fuel-injection valves to be interrupted, thus preventing unwanted fuel injection.
- During electrical welding (e.g., spot welding), the L-Jetronic control unit must be taken out.
- When using the trouble-shooting below, it is presumed that the engine is O.K. and that the ignition has been correctly set. The electrical system must be checked and, if need be, repaired.
- If alarm system is installed, proceed according to microcard ALL-500.
- In order to do the jobs of testing described in these instructions and to be able to evaluate the components, one should be familiar with the L-Jetronic and how it operates. Technical Instructions VDT-U3/3 describe the essential points of this operation and the structure of the L-Jetronic.



TROUBLE-SHOOTING CHARTS

The trouble-shooting charts below are designed to make it possible for workshop employees to identify quickly the causes of defects on the L-Jetronic using the universal test adapter and the adapter lead (1 684 463 129) and other suitable test equipment. A choice can be made between the following work procedures, depending on the training and experience of the mechanic:

- Detailed, step-by-step trouble-shooting chart

For the employee with limited experience and practice on vehicles with L-Jetronic. Access according to the customer complaint always brings one into a complete trouble-shooting program.

B3

- Targeted trouble-shooting program leading directly to the cause of the defect

For trained and experienced employees with a fairly large amount of practice on vehicles with L-Jetronic. Access according to the customer complaint can be made at one's option at a given component within the entire trouble-shooting program.

B5

Both trouble-shooting charts start with checking the electrical/electronic portion of the L-Jetronic using the universal test adapter and the adapter lead. With these, the wiring harness and the components connected to it are checked for their electrical operation and any defect is identified.

If no defect is found with the universal test adapter, the fuel pressure test must be run.

If no defect is found here either, one must proceed with the detailed or the targeted trouble-shooting chart.

B1

Trouble-shooting chart
Peugeot 505 Ti-Turbo



B2

Trouble-shooting chart
Peugeot 505 Ti-Turbo



1. Detailed, step-by-step trouble-shooting chart for the complete trouble-shooting program

- Electrical test using the universal test adapter, adapter lead 1 684 463 129, and a motortester or multimeter
Always put this test at the start of the testing program, and carry it through from start to end.
Coordinates B9...C 23.

- Testing fuel pressure with pressure gauge
This test is absolutely necessary following testing with the universal test adapter, and is to be run from start to end
(Coordinates D1...D10).

- Trouble-shooting according to customer complaints (defect symptoms)
The table below contains possible defect symptoms and in the right column, the starting coordinate for the detailed trouble-shooting program for those defects.
That program consists of test steps in a proper sequence for all individual components of the L-Jetronic. If, after conclusion of the trouble-shooting program, the defect for an assumed symptom has not been identified and corrected, another program must be determined using a new defect symptom, and worked through.

<u>Customer complaints (Defect symptoms)</u>	Electrical test with universal test adapter	Fuel pressure test with pressure gauge	Trouble-shooting program
1. Start.motor turns, eng. does not start or starts only with difficulty	B 9	D 1	E 1
2. Engine starts and then dies	B 9	D 1	F 1
3. Rough idle, or incorrect idle speed	B 9	D 1	G 1
4. Poor throttle take-up	B 9	D 1	H 1
5. Engine missing in all driving conditions	B 9	D 1	J 1
6. Poor mileage	B 9	D 1	K 1
7. Insufficient power or max. velocity is not attained	B 9	D 1	L 1
8. Idle speed and CO-level too low or too high	B 9	D 1	M 1

B3

Trouble-shooting chart
Peugeot 505 Ti-Turbo

**B4**

Trouble-shooting chart
Peugeot 505 Ti-Turbo



2. Targeted trouble-shooting chart leading directly to the cause of defect, for components within the trouble-shooting programs

- Electrical testing using the universal test adapter, adapter lead 1 684 463 129, and a motortester or multimeter
Always put the testing using the universal test adapter at the start of the testing program, and run the test from start to end (Coordinates B9...C23).
- Testing fuel pressure with pressure gauge
The fuel pressure test must always take place after testing with the universal test adapter, and is to be run from start to end (Coordinates D1...D10).
- Trouble-shooting according to the customer complaint
The table below contains various defect symptoms, in each case with several possible causes of the defect. The reference field indicates the starting coordinates for the test step on the individual components of the L-Jetronic. If, after conclusion of the test on the individual components, the defect has not been identified or corrected, the defect symptom must be newly determined.

Customer complaints (Defect symptoms)

1. Starting motor turns, engine does not start or starts only with difficulty								
2. Engine starts and then dies								
3. Rough idle, or incorrect idle speed								
4. Poor throttle take-up								
5. Engine missing in all driving conditions								
6. Poor mileage								
7. Insufficient power or max. velocity is not attained								
8. Idle speed and CO-level too low or too high								
<u>Cause</u> (Component defect)								
B9	B9	B9	B9	B9	B9	B9	B9	Defect in the electrical system. Test with universal test adapter.
D1	D1	D1	D1	D1	D1	D1	D1	Defect in the fuel supply system. Pressure regulator defective. Control relay defective. Electric fuel pump is not running. Fuel pressure test.
E9	F5	G11	H5					Auxiliary-air device is not opening
		G11					M5	Auxiliary-air device is not closing
E11		G19	H7	J5	K9	L15	M7	Air-flow sensor is defective. Potentiometer test (random noise test)
						L5		Full-load charge-air pressure switch, 10 kΩ resistor (exhaust gas turbocharger)
E13	F9							Hot starting difficulties - air intake system or fuel system is leaking

B5

Trouble-shooting chart
Peugeot 505 Ti-Turbo



B6

Trouble-shooting chart
Peugeot 505 Ti-Turbo



Customer complaints (fault symptoms)

1. Starting motor operates ,engine fails to start or starts only with difficulty									
2. Engine starts but then dies									
3. Rough idle/incorrect idle speed									
4. Poor throttle take-up									
5. Engine missing under all operating conditions									
6. Fuel consumption too high									
7. Insufficient max. power output									
8. Idle speed and CO concentration too low or too high									
Cause (component fault)									
E 7		G 7							Thermo-time switch defective
E 13	F 9	G 21	H 13			L 17	M 11		Air-intake system leaking
		G 13		J 17	K 5	L 11			Injection valves defective; connect test lead; repair
E 3									Start valve not opening
E 3	F 3	G 9			K 3		M 9		Start valve leaking
				J 9		L 13			Insufficient delivery of electric fuel pump (in-tank pre-supply pump defective)
		G 3	H 3	J 13					Throttle valve not closing (check overrun cutoff) throttle-valve switch (adjustment)
						L 3			Throttle valve not opening fully
				J 13					Overrun cutoff
				J 17					Open circuit in wiring harness and plug connectors, interference, missing, ground contact
		G 5	H 15	J 15	K 11		M 3		CO exhaust-gas adjustment too rich, idle adjustment
		G 23	H 15	J 15			M 3		CO exhaust-gas adjustment too lean, idle adjustment, engine coughing
				J 11					Control unit defective

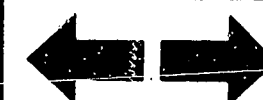
B7

Trouble-shooting chart
Peugeot 505 Ti-Turbo



B8

Trouble-shooting chart
Peugeot 505 Ti-Turbo



TEST CHART FOR THE UNIVERSAL TEST ADAPTER

with adapter lead 1 684 463 129 connected for the L-Jetronic

- Before testing with the universal test adapter, check all multiple plug connections for loose contacts. Clean dirty or corroded plug contacts.
- Watch for pin receptacles that have been pushed back. If need be, re-bend the latching lug and press the receptacle into the plug housing as far as the stop. The latching lug catches.

- Suspect breaks in leads with sharply bent or crimped locations.

Installation position of control unit: front-passenger side, above glove compartment.

Only the periphery of the electrical system (not including the control unit) is tested using the universal test adapter.

Disconnect the control unit plug of the Jetronic wiring harness from the control unit, and connect it to the plug of the adapter lead (the ignition must be switched off).

To the universal test adapter, for taking of measurements, connect a multimeter for measuring voltage and resistance, and a motortester.

The individual test steps are selected via two program switches (one for measurements of voltage, and the other for measurements of resistance). Each program switch has 24 test settings, but only some of these are assigned in the case of the L-Jetronic.

Start testing with test step 1.

Keep to sequence of test steps as they build on each other.

If a defect is found in a test, the test must be repeated after the defect has been corrected.

Testing with the universal test adapter must always be carried out completely.

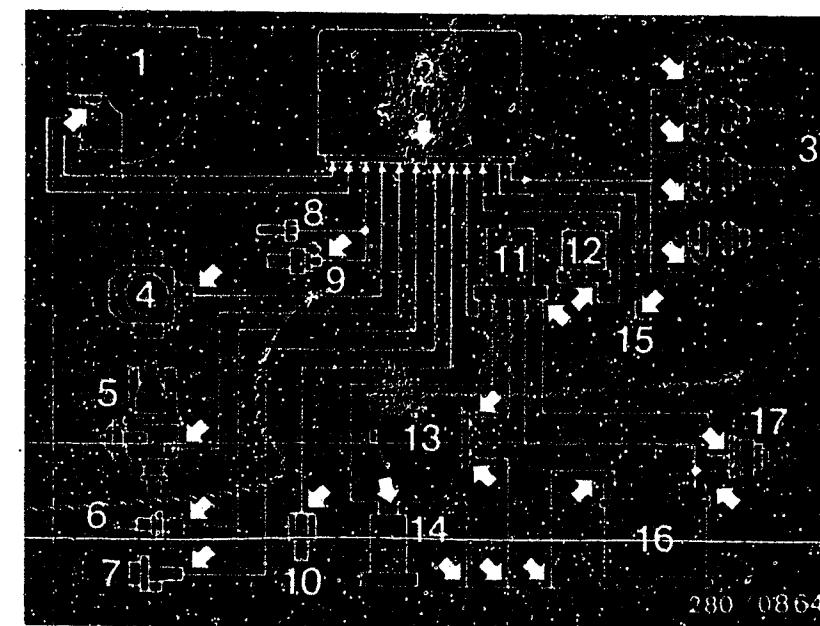
A vertical line in the right-hand margin points to a change in operation.

Be absolutely certain to follow the instructions in the test chart!

- During test steps 1...8, voltages are measured during the start and/or with the ignition "ON". Set the multimeter to "range for voltage measurement"

- In test steps 9...18, resistances are measured.
Set the multimeter to "range for resistance measurement".

The test specifications and instructions for operation of the universal test adapter are given in the test chart below.



Electrical plug-in connections (arrows)

- 1=Air-flow sensor
- 2=Control unit
- 3=Electric fuel-injection valves
- 4=Throttle valve switch
- 5=Ignition distributor
- 6=Temperature sensor (engine)
- 7=Auxiliary-air device
- 8=Thermotime switch
- 9=Starting valve
- 10=Charge-air pressure switch
- 11=Control relay
- 12=Auxiliary relay
- 13=Electric fuel pump
- 14=In-tank pre-supply pump
- 15=Ground terminal
- 16=Battery
- 17=Ignition lock

B9

Test chart for universal test adapter

Peugeot 505 Ti-Turbo



B10

Test chart for universal test adapter

Peugeot 505 Ti-Turbo



Note:
For the test steps below, a white border in the column "Operation" indicates what operation is to be changed from the preceding test step.

TEST STEP 1			
Operation		Reading	Testing
Program switch "V" in setting:	3	Multimeter must read 8 ... 15 V	<u>Components:</u> Ignition/starting switch
Program switch "Ω" in setting:	-*		
Test equipment: Motortester or Multimeter (V-Range)		<div> <div>yes</div> <div>no</div> </div> <div> <div>Continue testing with next test step.</div> <div></div> </div>	<u>Function:</u> Starting signal from Term. 50. Measured on control unit plug Term. 4 and Term. 5.
Range of measurement: 0 ... 15V			
Connection: Red test socket (+) Black test socket (-)			<u>Malfunction:</u> No reading for voltage
Operation in the vehicle: Ignition "ON", start the engine			

Trouble-shooting:
For testing, disconnect control unit plug from the test adapter.
If necessary, use a circuit diagram.
Check the following leads for continuity using an ohmmeter (specified value approx. 0Ω):

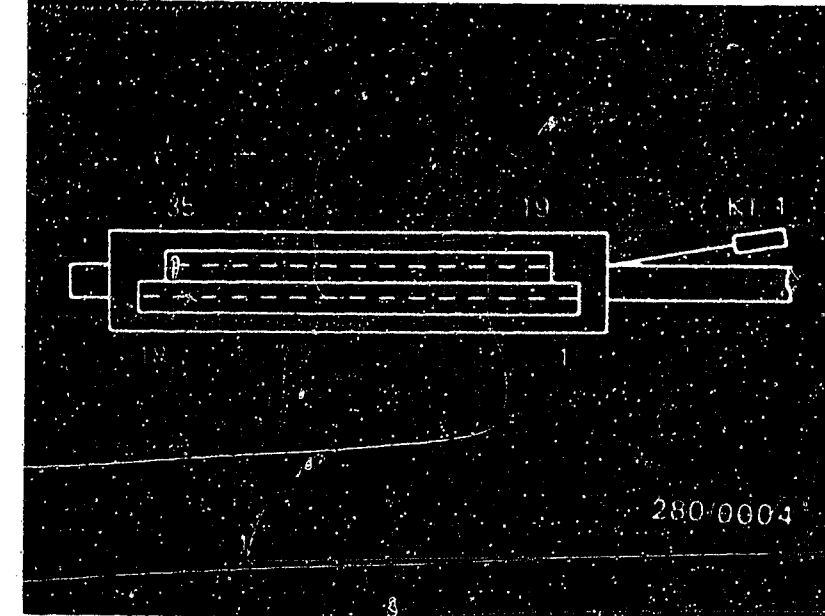
- From control-unit plug term. 4 to ignition/starting switch term. 50
- From the control unit plug Term. 5 to the ground terminal for the electronic system.
- Eliminate contact resistances in the plug connections.

If the reading for voltage is still missing, check the starting equipment.

Installation position of the components:

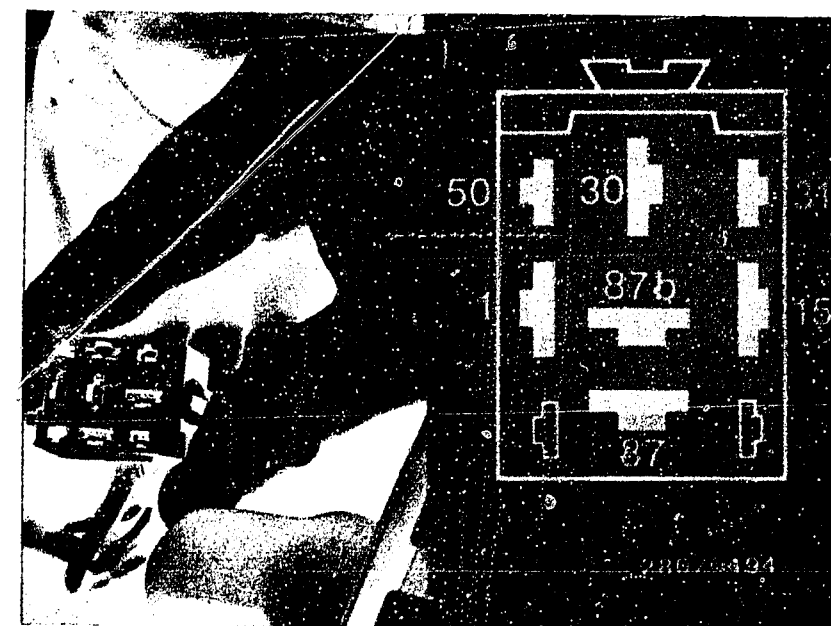
- Control unit: Above the glove compartment in the passenger compartment.
- Control relay: Under the dashboard on the left.
- Ground terminals: On the left in front of the bulkhead.

* Switch setting not determined.



Top view of the control unit plug

Control relay disconnected.
Top view of plug



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Test chart for universal test adapter
Peugeot 505 Ti-Turbo



B12

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 2			
Operation		Reading	Testing
Program switch "V" in setting:	5	Ignition oscilloscope must show <u>Ignition pulses</u>	<u>Components:</u> Ignition system Signal from Term. 1
Program switch "Ω" in setting:	-		
<u>Test equipment:</u> Ignition oscilloscope		<div><div>yes</div><div>↓</div><div>Continue testing with next test step.</div></div> <div>no</div> <div>↓</div>	<u>Function:</u> Voltage pulses Triggering of the control unit by the ignition. Measured on control unit plug Term. 1 and Term. 5.
<u>Range of measurement:</u> Special input Control lever at stop at left, and range of measurement 20 V			
<u>Connection:</u> Test wells			
<u>Operation in the vehicle:</u> Ignition "ON", start the engine			
			<u>Malfunction:</u> No reading

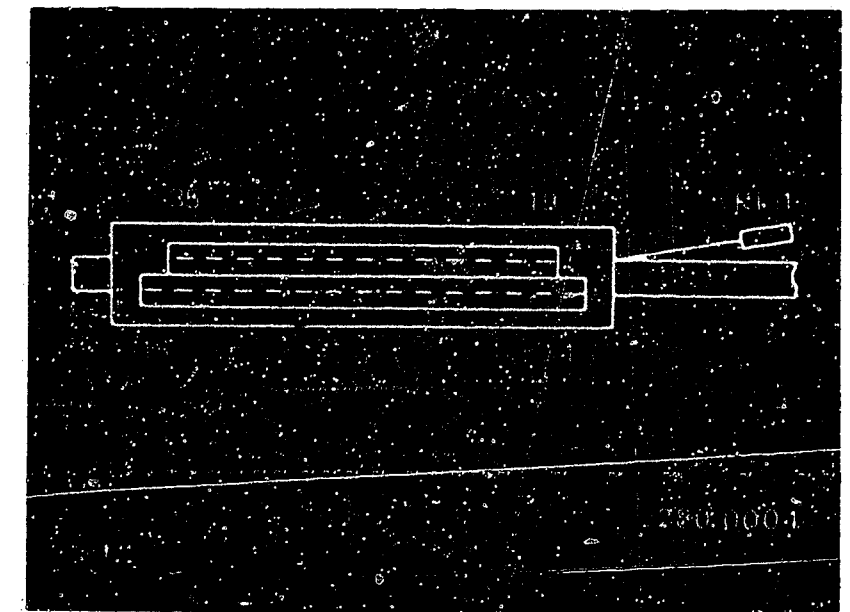
Trouble-shooting:

For testing, disconnect control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value 0 Ω)

- From the control unit plug Term. 1 to the ignition coil Term. 1
- Eliminate contact resistances in the plug connections.

If the reading for an ignition pulse is still missing, check the ignition system.



Top view of control unit plug

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.

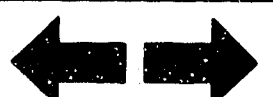
B 13

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



B 14

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 3			
Operation		Reading	Testing
Program switch "V" in setting	6	Multimeter must read <u>8 ... 15 V</u>	<u>Components:</u> Auxiliary relay Voltage supply
Program switch "Ω" in setting:	-		
Test equipment: Motortester or multimeter (V Range)		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> yes ↓ Continue testing with next test step. </div> <div style="text-align: center;"> no ↓ </div> </div>	<u>Function:</u> Voltage supply from Term. 10 of the auxiliary relay. Measured on control unit plug Term. 10 and Term. 5.
Range of measurement:			
Connection:			
Operation in the vehicle:			
Red test socket (+)			<u>Malfunction:</u> No reading for voltage
Black test socket (-)			
Ignition "ON"			

Trouble-shooting:

For testing disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

- From the control unit plug Term. 10 to the auxiliary relay Term. 10.

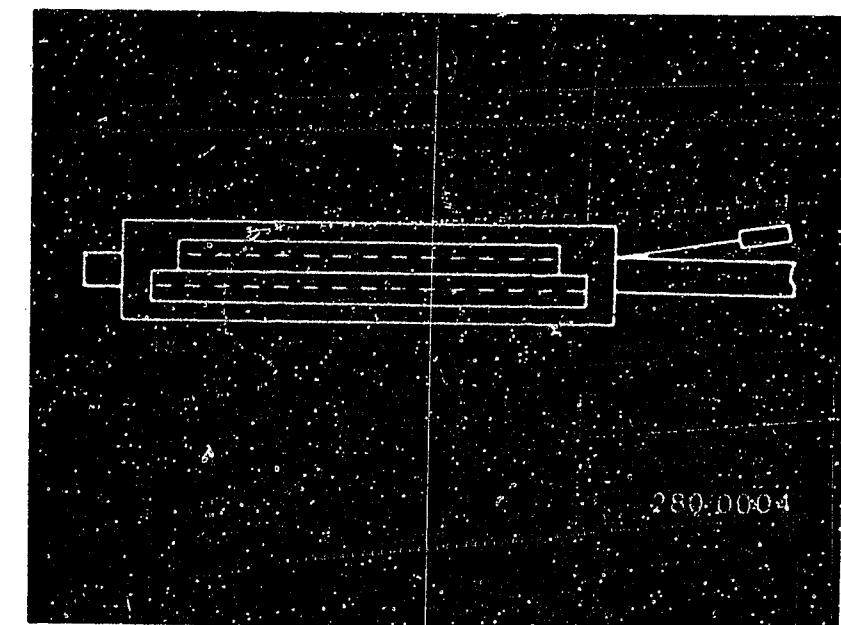
For further testing, disconnect the battery!

- From the auxiliary relay Term. 20 to the battery (+ connection).
- From the auxiliary relay Term. 32 to the ignition Term. 15.
- From the auxiliary relay Term. M to the vehicle ground.
- Eliminate contact resistances at the plug connections.

If the reading for voltage is still missing, take out and replace the auxiliary relay.

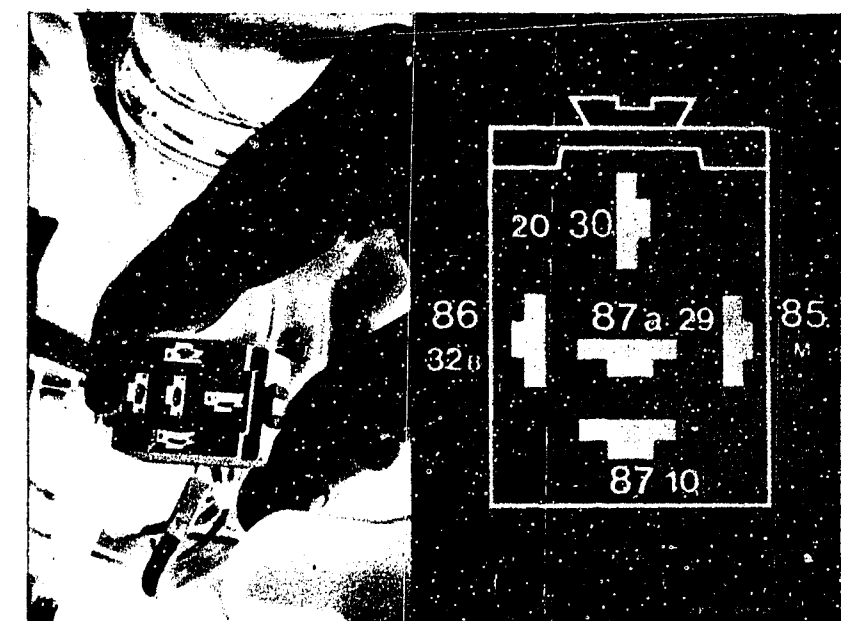
Installation position of the components:

- Control unit: Above the glove compartment in the passenger compartment.
- Auxiliary relay: On the bulkhead, at the left, in the engine compartment, the outer relay.



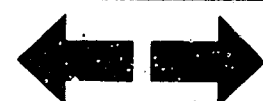
Top view of the control unit plug

Auxiliary relay disconnected.
Top view of plug



B 15

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

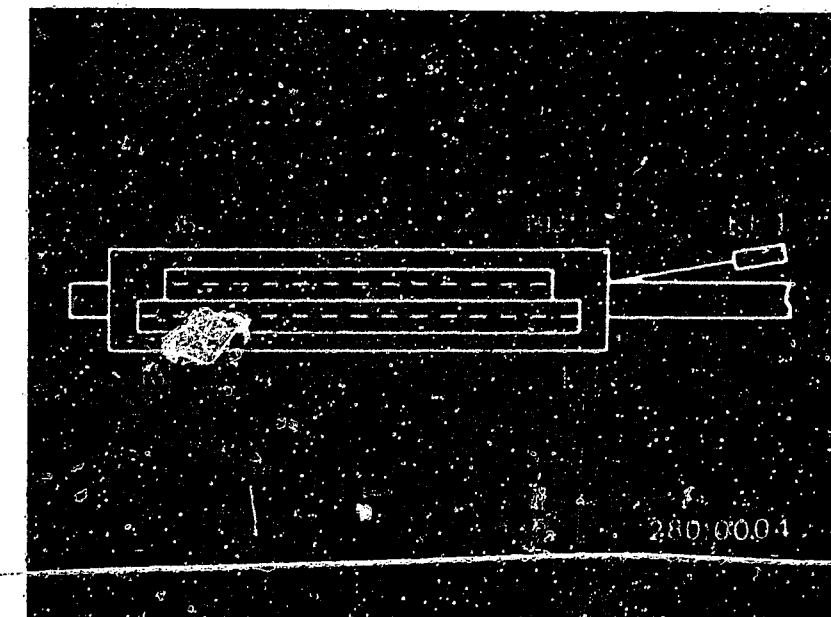


B 16

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 4			
Operation		Reading	Testing
Program switch "V" in setting	7	Multimeter must read <u>8 ... 15 V</u>	<u>Components:</u> Auxiliary relay 1st electric fuel-injection valve
Program switch "Ω" in setting	-		
Test equipment: Motortester or multimeter (V Range)		<div><div>yes</div><div>↓</div><div>Continue testing with next test step.</div></div> <div>no</div> <div>↓</div>	<u>Function:</u> Voltage supply to 1st electric fuel-injection valve. Measured on control unit plug Term. 15 and Term. 5.
Range of measurement: 0...15 V			
<u>Connection:</u> Red test socket (+) Black test socket (-)			
<u>Operation in the vehicle:</u> Ignition "ON"			
			<u>Malfunction:</u> No reading for voltage



Top view of control unit plug

Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

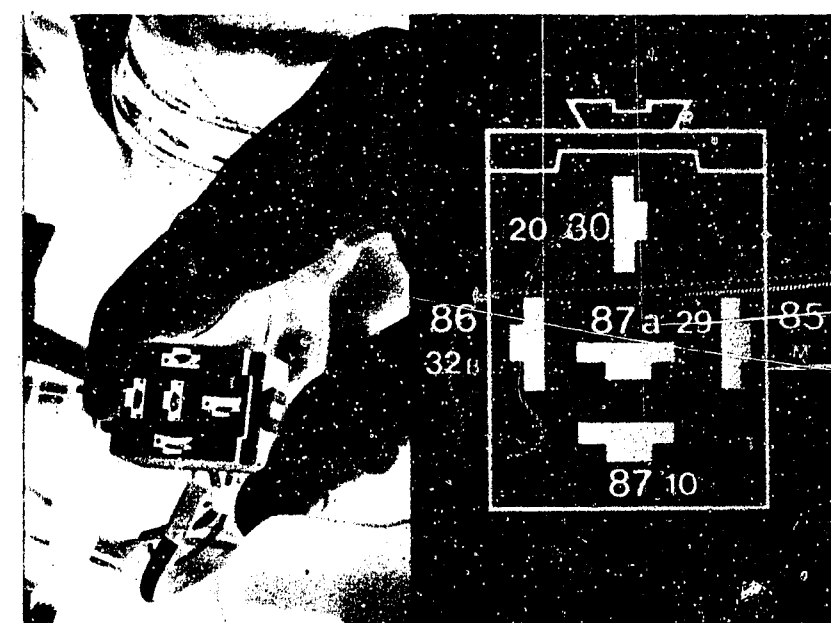
- From the auxiliary relay Term. 20B to the 1st electric fuel-injection valve Term. 37
- From the control unit plug Term. 15 to the 1st electric fuel-injection valve Term. 15.
- Eliminate contact resistances at the plug connections.

If the reading for voltage is still missing, take out and replace the 1st electric fuel-injection valve.

Installation position of the components:

- Control unit: Above the glove compartment in the passenger compartment.
- Auxiliary relay: On the bulkhead at the left, in the engine compartment, the outer relay.

Auxiliary relay disconnected.
Top view of plug



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Test chart for universal test adapter
Peugeot 505 Ti-Turbo



B18

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 5			
Operation		Reading	Testing
Program switch "V" in setting	8	Multimeter must read <u>8 ... 15 V</u>	<u>Components:</u> Auxiliary relay 2nd electric fuel-inj. valve
Program switch "Ω" in setting	-		
Test equipment: Motortester or multimeter (V Range)		<div> <div>yes</div> <div>↓</div> <div>Continue testing with next test step.</div> </div> <div>no</div> <div>↓</div>	<u>Function:</u> Voltage supply to 2nd electric fuel-injection valve. Measured on control unit plug Term. 33 and Term. 5.
Range of measurement: 0...15 V			
Connection: Red test socket (+) Black test socket (-)			
Operation in the vehicle: Ignition "ON"			
			<u>Malfunction:</u> No reading for voltage

Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

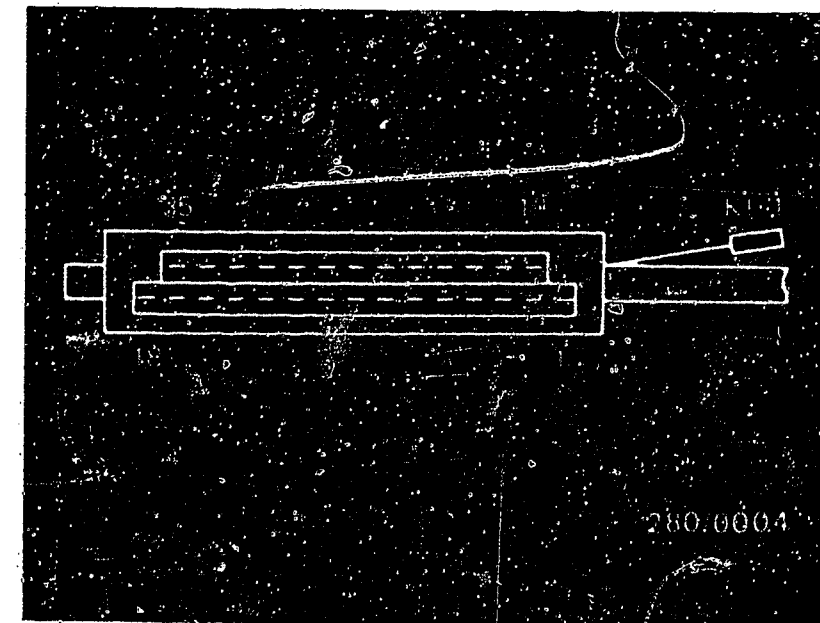
Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

- From the auxiliary relay Term. 20B to the 2nd electric fuel-injection valve Term. 38
- From the control unit plug Term. 33 to the 2nd electric fuel-injection valve Term. 33
- Eliminate contact resistances at the plug connections.

If the reading for voltage is still missing, take out and replace the 2nd electric fuel-injection valve.

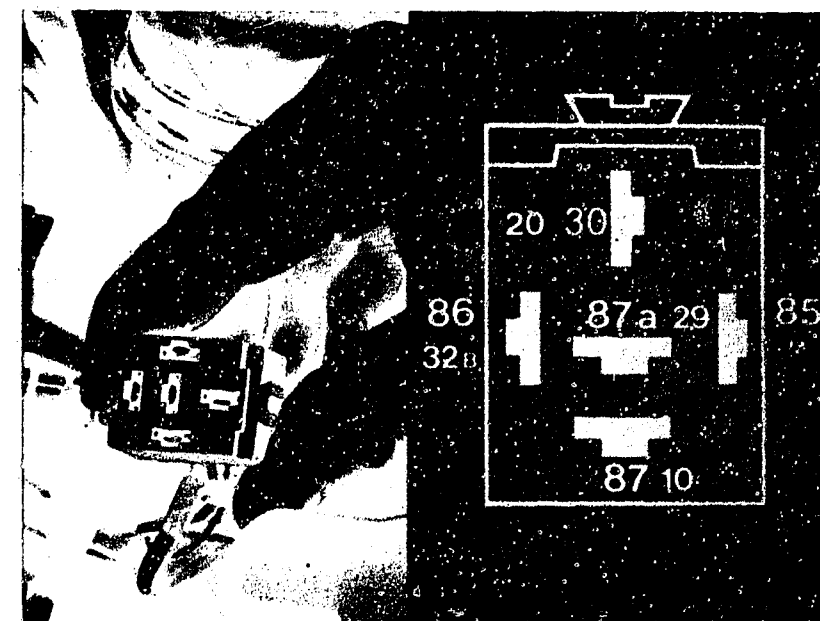
Installation position of the components:

- Control unit: Above the glove compartment in the passenger compartment
- Auxiliary relay: On the bulkhead at the left, in the engine compartment, the outer relay.



Top view of control unit plug

Auxiliary relay disconnected.
Top view of plug



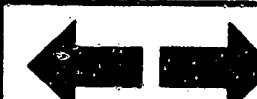
B 19

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

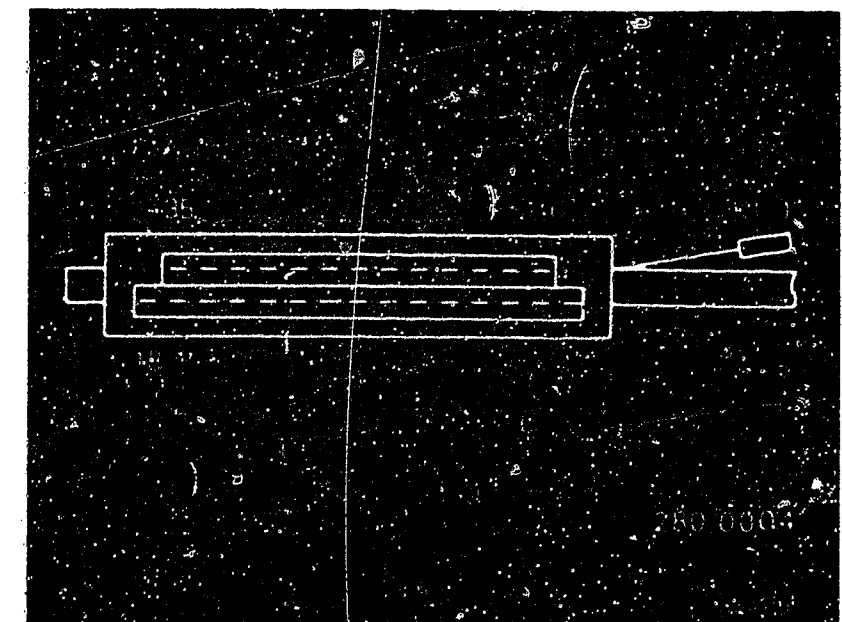


B 20

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

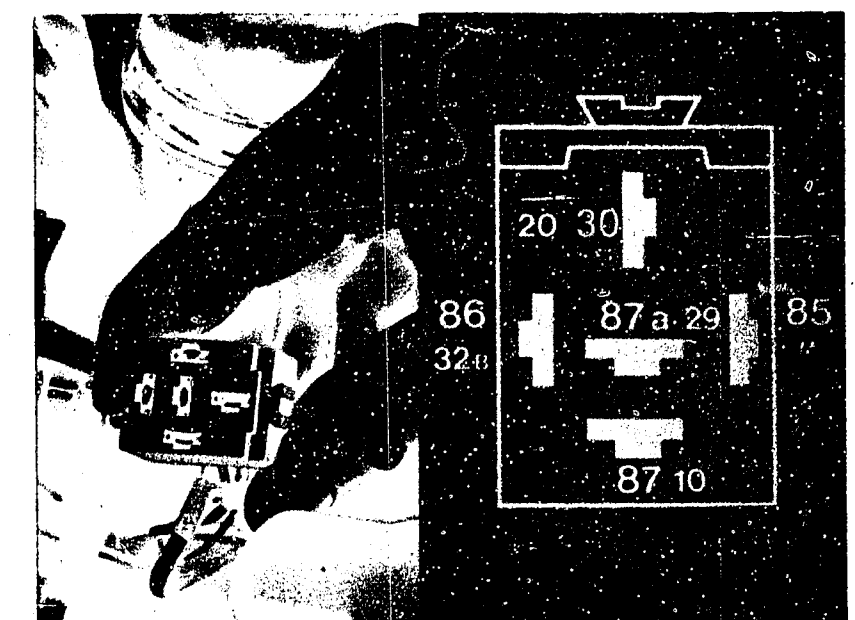


TEST STEP 6			
Operation		Reading	Testing
Program switch "V" in setting	9	Multimeter must read <u>8 ... 15 V</u>	<u>Components:</u> Auxiliary relay 3rd electric fuel-inj. valve
Program switch "Ω" in setting	-		
Test equipment: Motortester or multimeter (V Range)		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> yes ↓ Continue testing with next test step. </div> <div style="text-align: center;"> no ↓ </div> </div>	<u>Function:</u> Voltage supply to 3rd electric fuel-injection valve. Measured on control unit plug Term. 32 and Term. 5.
Range of measurement: 0...15 V			
<u>Connection:</u> Red test socket (+) Black test socket (-)			
<u>Operation in the vehicle:</u> Ignition "ON"			
			<u>Malfunction:</u> No reading for voltage



Top view of control unit plug

Auxiliary relay disconnected. Top view of plug



Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

- From the auxiliary relay Term. 20B to the 3rd electric fuel-injection valve Term. 40
- From the control unit plug Term. 32 to the 3rd electric fuel-injection valve Term. 32
- Eliminate contact resistances at the plug connections.

If the reading for voltage is still missing, take out and replace the 3rd electric fuel-injection valve.

Installation position of the components:

- Control unit: Above the glove compartment in the passenger compartment
- Auxiliary relay: On the bulkhead at the left, in the engine compartment, the outer relay.

B21

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

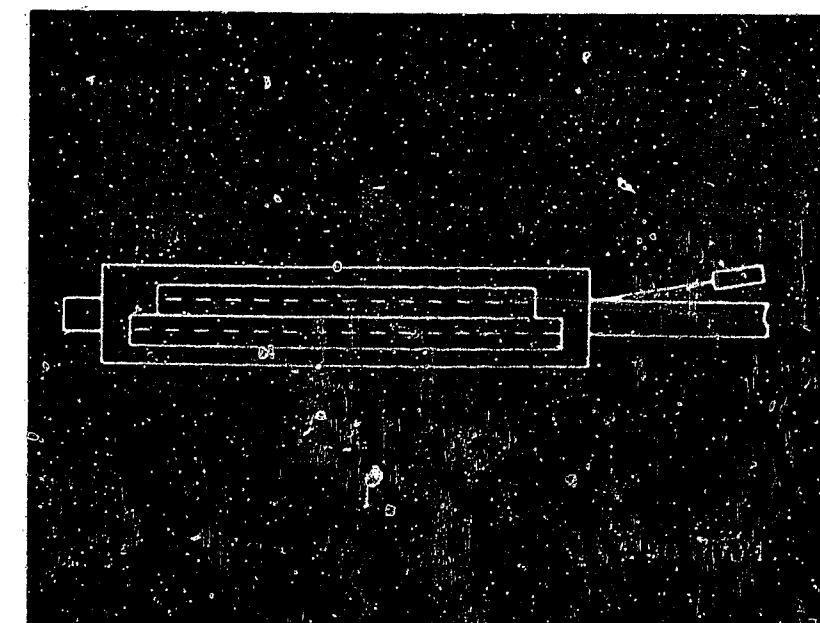


B22

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

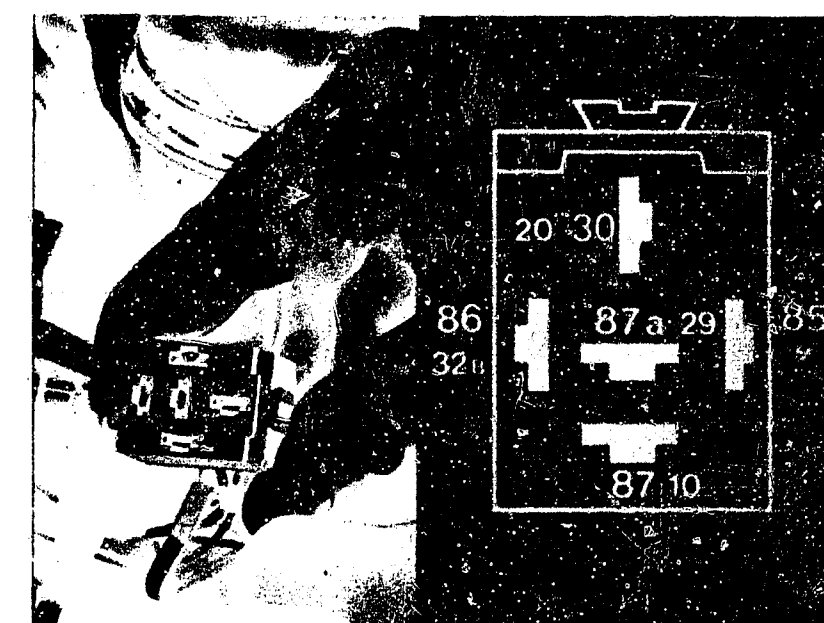


TEST STEP 7			
Operation		Reading	Testing
Program switch "V" in setting:	10	Multimeter must read <u>8 ... 15 V</u>	<u>Components:</u> Auxiliary relay 4th electric fuel-inj. valve
Program switch "Ω" in setting:	-		
Test equipment: Motortester or multimeter (V Range)		<div> <div>yes</div> <div>↓</div> <div>Continue testing with next test step.</div> </div> <div>no</div> <div>↓</div>	<u>Function:</u> Voltage supply to 4th electric fuel-injection valve. Measured on control unit plug Term. 14 and Term. 5.
Range of measurement: 0...15 V			
Connection: Red test socket (+) Black test socket (-)			
Operation in the vehicle: Ignition "ON"			
			<u>Malfunction:</u> No reading for voltage



Top view of control unit plug

Auxiliary relay disconnected.
Top view of plug



Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

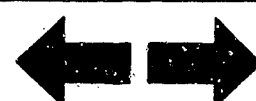
- From the auxiliary relay Term. 20B to the 4th electric fuel-injection valve Term. 41
 - From the control unit plug Term. 14 to the 4th electric fuel-injection valve Term. 14
 - Eliminate contact resistances at the plug connections.
- If the reading for voltage is still missing, take out and replace the 4th electric fuel-injection valve.

Installation position of the components:

- Control unit: Above the glove compartment in the passenger compartment
- Auxiliary relay: On the bulkhead at the left, in the engine compartment, the outer relay

B23

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

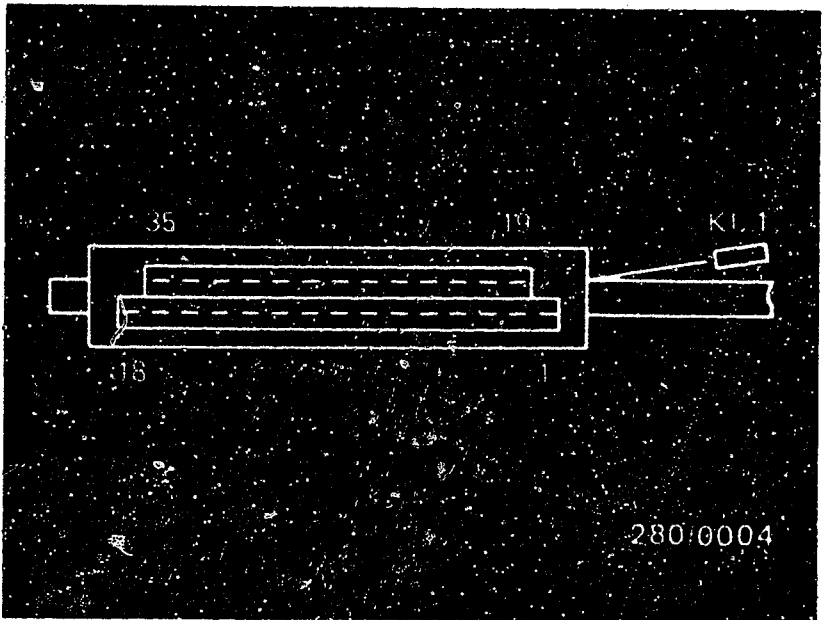


B24

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 8		Reading	Testing
Operation			
Program switch "V" in setting:	12	Multimeter must read <u>8 ... 15 V</u>	<u>Components:</u> Auxiliary relay Voltage supply
Program switch "Ω" in setting:	-		
Test equipment: Motortester or multimeter (V Range)		<div> <div>yes</div> <div>↓</div> <div>Continue testing with next test step.</div> </div> <div>no</div> <div>↓</div>	<u>Function:</u> Voltage supply from Term. 29 of the auxiliary relay. Measured on control unit plug Term. 29 and Term. 5.
Range of measurement: 0...15 V			
Connection: Red test socket (+) Black test socket (-)			
Operation in the vehicle: Ignition "ON"			
			<u>Malfunction:</u> No reading for voltage



Top view of control unit plug

Auxiliary relay disconnected. Top view of plug

Trouble-shooting:
 For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.
 Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

- From the control unit plug Term. 29 to the auxiliary relay Term. 29

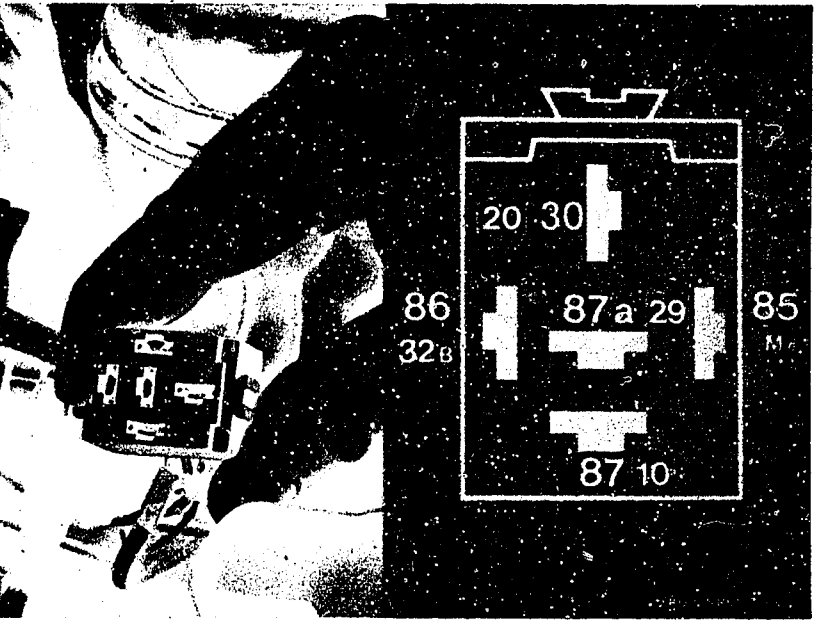
For further testing, disconnect the battery!


- Eliminate contact resistances at the plug connections.

If the voltage reading is still missing, take out and replace the auxiliary relay.

Installation position of the components:

- Control unit: Above the glove compartment in the passenger compartment.
- Auxiliary relay: On the bulkhead at the left, in the engine compartment, the outer relay.



TEST STEP 9		
Operation	Reading	Testing
Program switch "V" in setting: 	Multimeter must read $80 \dots 1000 \Omega$	Components: Air-flow sensor (potentiometer)
Program switch "Ω" in setting: 6		
Test equipment: Motortester or multimeter (Ω Range)	<div> <div>yes ↓</div> <div>Continue testing with next test step.</div> </div> <div>no ↓</div>	Function: Resistance of air-flow sensor Term. 7 (wiper) Measured on control unit plug Term. 7 and Term. 5(6). Malfunction: Resistance not within tolerance
Range of measurement: $\times 10 \Omega$		
Connection: Blue test socket		
Operation in the vehicle: Deflect air-flow sensor flap all the way		

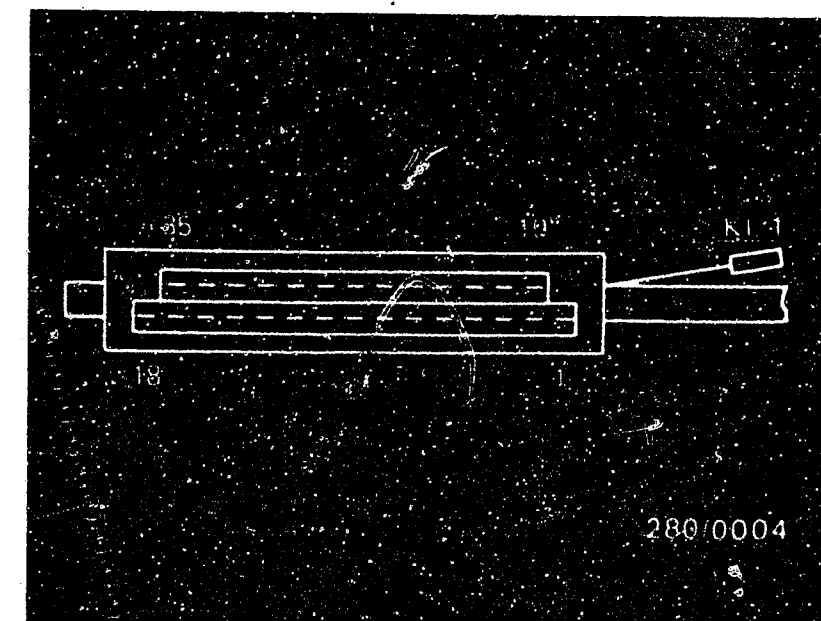
Trouble-shooting

For testing, disconnect control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0Ω):

- From the control unit plug Term. 7 to the air-flow sensor Term. 7
- From the control unit plug Term. 6 to the air-flow sensor Term. 6A
- Eliminate contact resistances in the plug connections.

If the reading for resistance is still not within tolerance, take out and replace the air-flow sensor.



Top view of control unit plug

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.
- Air-flow sensor: Under the air filter in the engine compartment.

C3


Test chart for universal test adapter
Peugeot 505 Ti-Turbo

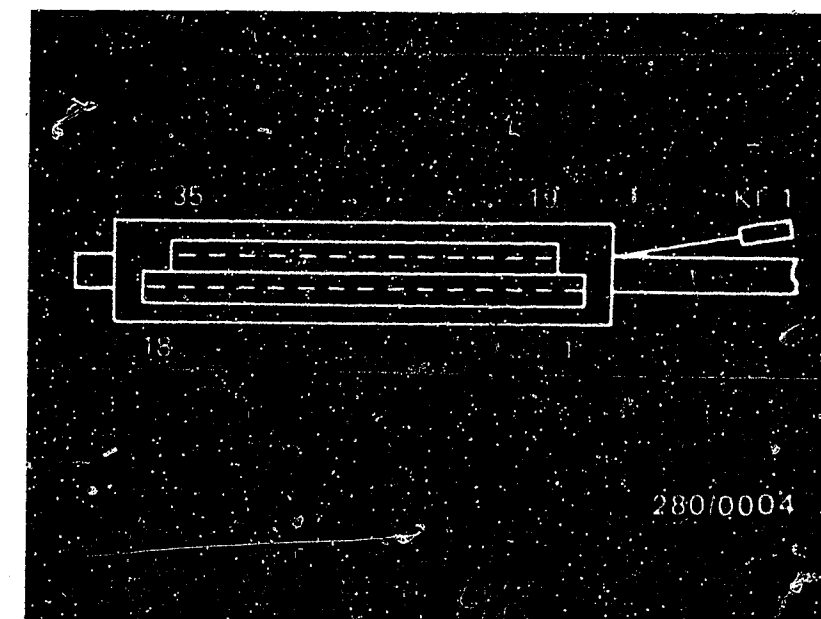


C4

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 10			
<u>Operation</u>		<u>Reading</u>	<u>Testing</u>
<u>Program switch "V" in setting:</u>		Multimeter must read <u>260 ... 520 Ω</u>	<u>Components:</u> Air-flow sensor (Potentiometer)
<u>Program switch "Ω" in setting:</u>	7		
<u>Test equipment:</u> Motortester or multimeter (Ω Range)		<div><div>yes</div><div>↓</div><div>Continue testing with next test step.</div></div> <div><div>no</div><div>↓</div></div>	<u>Function:</u> Resistance from air-flow sensor Term. 8 (total resistance). Measured on control unit plug Term. 8 and Term. 5(6).
<u>Range of measurement:</u> x 10 Ω			
<u>Connection:</u> Blue test socket			<u>Malfunction:</u> Resistance not within tolerance
<u>Operation in the vehicle:</u> -----			



Top view of control unit plug

Trouble-shooting:

For testing, disconnect control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0Ω):

- From the control unit plug Term. 8 to the air-flow sensor Term. 8.
- Eliminate contact resistances in the plug connections.

If the reading for resistance is still not within tolerance, take out and replace the air-flow sensor.

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.
- Air-flow sensor: Under the air filter in the engine compartment.

C5


Test chart for universal test adapter
Peugeot 505 Ti-Turbo

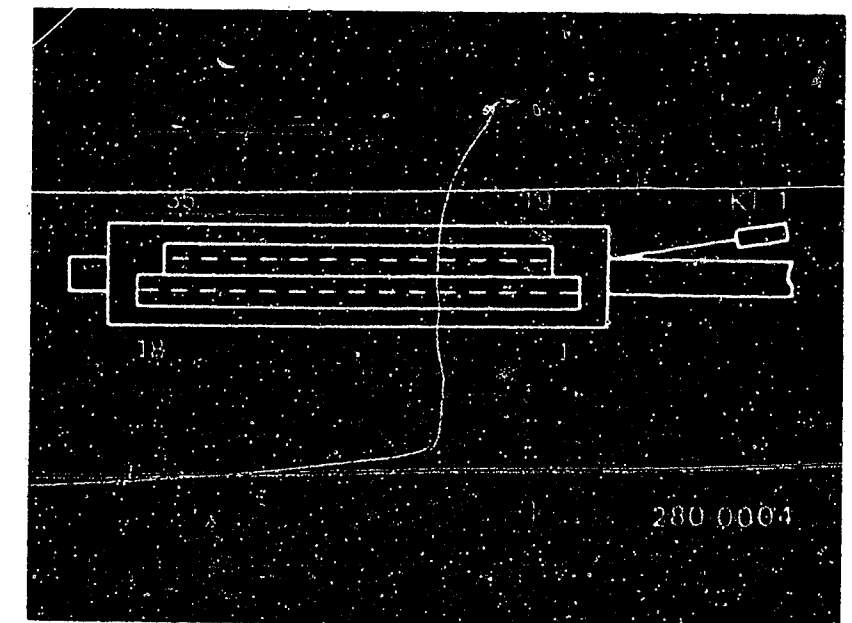


C6

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 11		
Operation	Reading	Testing
Program switch "V" in setting: 	Multimeter must read <u>400 ... 800 Ω</u>	<u>Components:</u> Air-flow sensor (Potentiometer) and series resistor
Program switch " Ω " in setting: 8		
Test equipment: Motortester or multimeter (Ω Range)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> yes ↓ Continue testing with next test step. </div> <div style="text-align: center;"> no ↓ </div> </div>	<u>Function:</u> Resistance from air-flow sensor Term. 9. Measured on the control unit plug Term. 9 and Term. 5 (6).
Range of measurement:		
x 10 Ω		
Connection: Blue test socket		
Operation in the vehicle:		<u>Malfunction:</u> Resistance not within tolerance



Top view of control unit plug

Trouble-shooting:

For testing disconnect control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω)

- From the control unit plug Term. 9 to the air-flow sensor Term. 9.
- Eliminate contact resistances in the plug connections.

If the reading for resistance is still not within tolerance, take out and replace the air-flow sensor.

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.
- Air-flow sensor: Under the air filter in the engine compartment.

C7

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

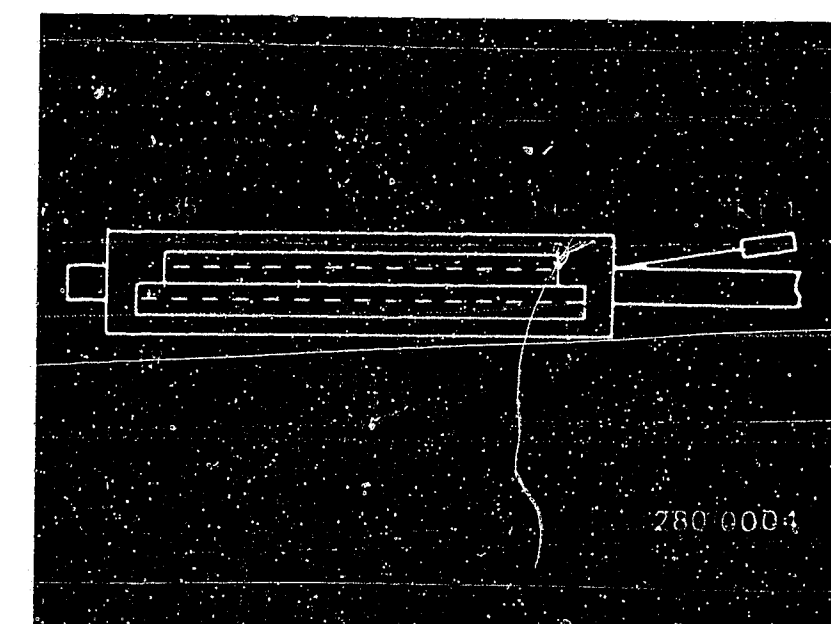


C8

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 12			
Operation		Reading	Testing
Program switch "V" in setting:	↓	Multimeter must read <u>0 ... 10 Ω</u>	<u>Components:</u> Throttle valve switch (Idle contact)
Program switch "Ω" in setting:	9		
Test equipment: Motortester or multimeter (Ω Range)		<div><div>yes</div><div>↓</div><div>Continue testing with next test step.</div></div> <div><div>no</div><div>↓</div></div>	<u>Function:</u> Resistance of throttle valve switch Term. 2. Measured on the control unit plug Term. 2 and Term. 18.
Range of measurement: x 1 Ω			
Connection: Blue test socket			
Operation in the vehicle: Accelerator pedal at rest			



Top view of control unit plug

Trouble-shooting:

For testing, disconnect control unit plug from the test adapter. If necessary, use a circuit diagram.

Adjustment of the throttle valve switch (on the left on the intake manifold):

Release the fastening screws for the throttle valve switch somewhat.

Connect an ohmmeter to the throttle valve switch between Term. 2 and Term. 18.

Turn the throttle valve switch far enough to the right so that the idle contact closes (microswitch clicks audibly).

Reading 0Ω . If not, take out and replace the throttle valve switch.

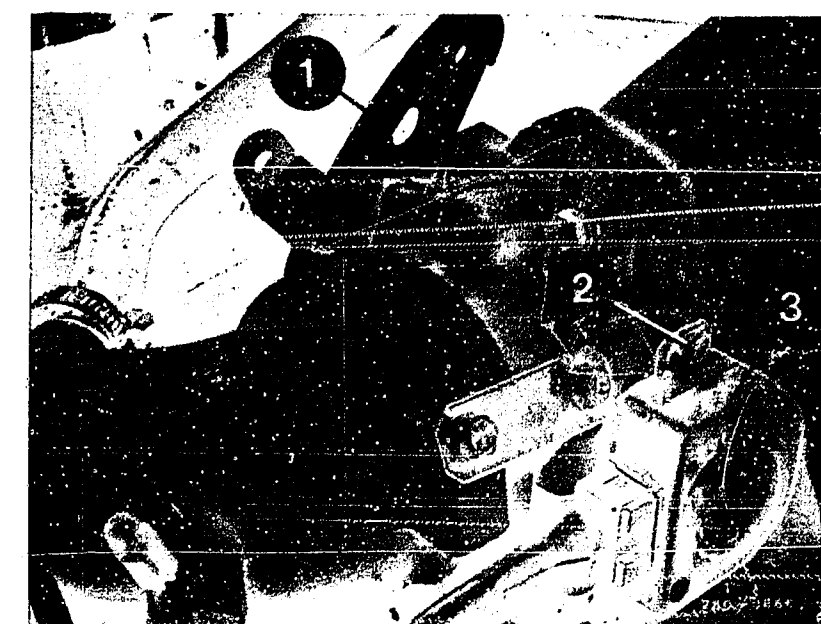
Checking setting: Pull slightly on throttle cable. The idle contact opens.

(Microswitch clicks audibly.) Reading $\infty\Omega$.

Check the following leads for continuity using an ohmmeter (specified value approx. 0Ω):

- From control unit plug Term. 2 to throttle valve switch Term. 2.
- From throttle valve switch Term. 18 to control unit plug Term. 18.
- Eliminate contact resistances in the plug connections.

- 1=Throttle valve lever
- 2=Fastening screws
- 3=Throttle valve switch



C9

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

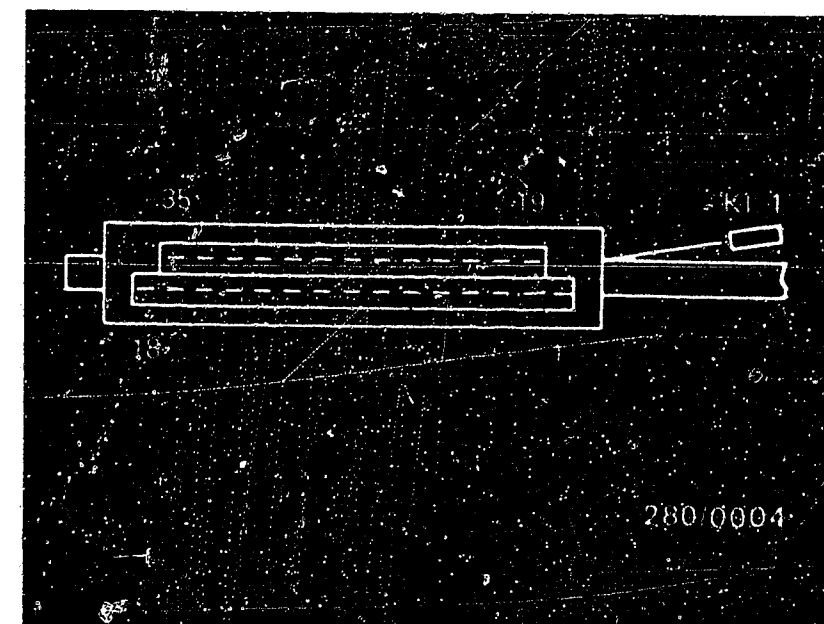


C10

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 13		
Operation	Reading	Testing
<u>Program switch "V" in setting:</u>	Multimeter must read <u>9 ... 11kΩ</u>	<u>Components:</u> Throttle valve switch (full-load contact), Charge-air pressure full-load switch and 10 kΩ resistor.
<u>Program switch "Ω" in setting:</u>		
<u>Test equipment:</u> Motortester or multimeter (Ω Range)		
<u>Range of measurement:</u> x100 Ω or x 1000 Ω	<div>yes</div> <div>no</div> <div>Continue testing with next test step.</div>	<u>Function:</u> Resistance of throttle valve switch Term. 3, switch contact and 10 kΩ resistor. Measured on control-unit plug Term. 3 and Term. 18.
<u>Connection:</u> Blue test socket		
<u>Operation in the vehicle:</u> Step all the way down on accel. Subject charge-air pressure full-load switch to appr. 0.2		
bar overpressure		<u>Malfunction:</u> Resistance not within tolerance



Top view of control unit plug

Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω).

- From control-unit plug term. 3 to resistor term. 3.
- From resistor term. 3A to charge-air pressure full-load switch term. 3A.
- From the charge-air pressure full-load switch Term. 3B to the throttle valve switch Term. 3.

Check resistance: Specified value 9 ... 11 k Ω .

If the resistance measured is not within tolerance, take out and replace the resistor.

Checking the charge-air pressure full-load switch:

At atmospheric pressure: contact open, $\infty\Omega$.

At 0.2...1.0 bar overpressure: contact closed, 0 Ω .

If not, take out and replace the charge-air pressure full-load switch.

- Eliminate contact resistances in the plug contacts.

If the reading for resistance still remains not within tolerance, take out and replace the throttle-valve switch.

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.
- Throttle valve switch:
On the left on the intake manifold.
- Charge-air pressure full-load switch, and 10 k Ω resistor.
In the engine compartment on the left, under the braking-force booster.

C11


Test chart for universal test adapter
Peugeot 505 Ti-Turbo

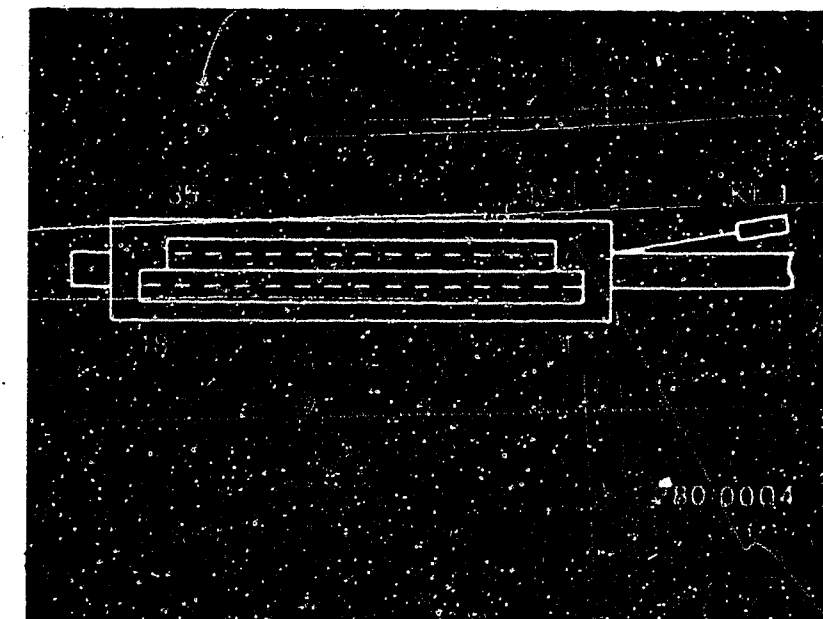


C12

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 14		
Operation	Reading	Testing
Program switch "V" in setting:	<div style="text-align: center;">  11 </div> <p>The multimeter must read: at ambient temperature (+15°C...+30°C): <u>1.45... 3.3 kΩ</u> with engine at normal operating temperature (approx. +80°C): <u>280...360 Ω</u></p>	Components: Temperature sensor I (Intake air)
Program switch "Ω" in setting:		Function: Resistance of air-flow sensor Term. 27. Measured on control unit plug Term. 27 and Term. 5(6).
Test equipment: Motortester or multimeter (Ω Range)		Malfunction: Resistance not within tolerance
Range of measurement: x 10 Ω or x 100 Ω		
Connection: Blue test sockets		
Operation in the vehicle: -----	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> yes Continue testing with next test step. </div> <div style="margin-left: 10px;">no</div> </div>	



Top view of control unit plug

Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Measure resistance directly on temperature sensor I, air-flow sensor Term. 27 and 6A. If the resistance measured is not within tolerance, take out and replace the air-flow sensor.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

- From the control unit plug Term. 27 to the air-flow sensor Term. 27.
- Eliminate contact resistances in the plug conditions.

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.
- Air-flow sensor: Under the air filter in the engine compartment.

C13

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



C14

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 15		
Operation		Reading
Program switch "V" in setting:	↓	The multimeter must read: at ambient temperature (+15°C...+30°C): 1.3...3.6 kΩ with engine at normal operating temperature (approx. +80°C): 250...390 Ω
Program switch "Ω" in setting:	12	
Test equipment: Motortester or multimeter, (Ω Range)		
Range of measurement: x 10 Ω or x 100 Ω		
Connection: Blue test sockets		<div>yes</div> <div>no</div>
Operation in the vehicle: -----		
		<div>Continue testing with next test step</div> <div></div>
		Malfunction: Resistance not within tolerance

Trouble-shooting:

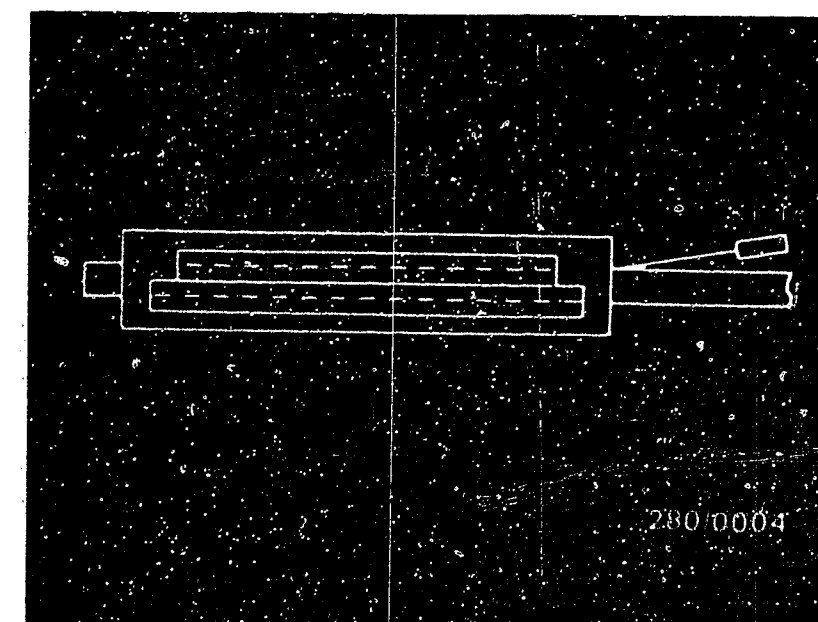
For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Measure resistance value directly on temperature sensor II, engine (blue plug).

If the value measured for resistance is not within tolerance, take out and replace the temperature sensor.

Check the following leads for continuity using an ohmmeter (specified value approx. 0Ω):

- From control unit plug Term. 13 to temperature sensor II (engine) Term. 13.
- Lead M49 from temperature sensor II to the ground terminal.
- Eliminate contact resistances in the plug connections.



Top view of control unit plug

Installation position of the components

- Temperature sensor II (engine):
At the top on the coolant distributor.
- Ground terminal: On the bulk-head at the left, behind a cover
- Control unit: Above the glove compartment in the passenger compartment

C15


Test chart for universal test adapter
Peugeot 505 Ti-Turbo



C16

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 16			
Operation		Reading	Testing
<u>Program switch "V" in setting:</u>		Multimeter must read <u>0 ... 10 Ω</u>	<u>Components:</u> Ground connection of the output stage
<u>Program switch "Ω" in setting:</u>	13		
<u>Test equipment:</u> Motortester or multimeter (Ω Range)		<div><div>yes</div><div>↓</div><div>Continue testing with next test step.</div></div> <div>no</div> <div>↓</div>	<u>Function:</u> Ground connection from control unit Term. 16
<u>Range of measurement:</u> x 1 Ω			
<u>Connection:</u> Blue test sockets			<u>Malfunction:</u> Resistance not within tolerance
<u>Operation in the vehicle:</u> -----			

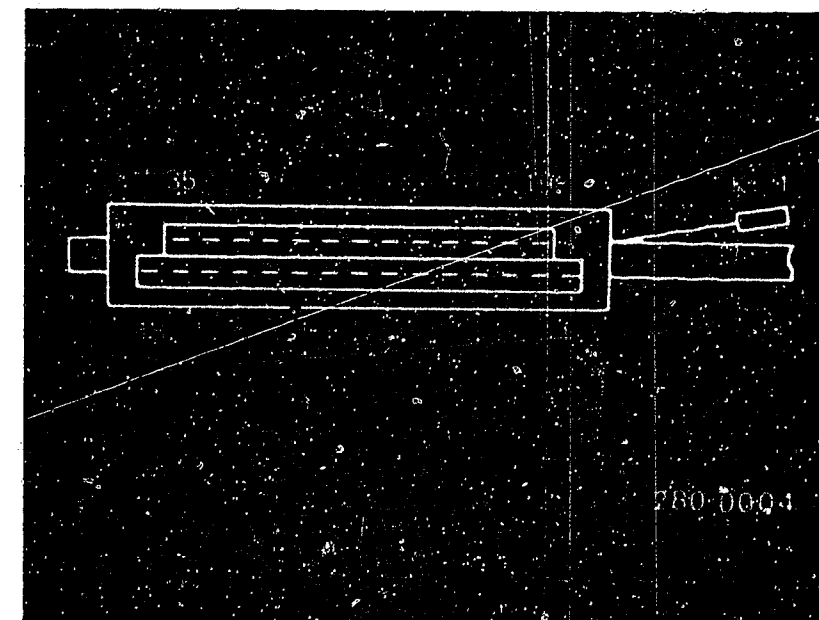
Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

- From control unit plug Term. 16 to the ground terminal.

Eliminate contact resistances at the plug connections.



Top view of control unit plug

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.
- Ground terminal: On the left on the bulkhead, behind a cover.

C17

Test chart for universal test adapter
Peugeot 505 Ti-Turbo

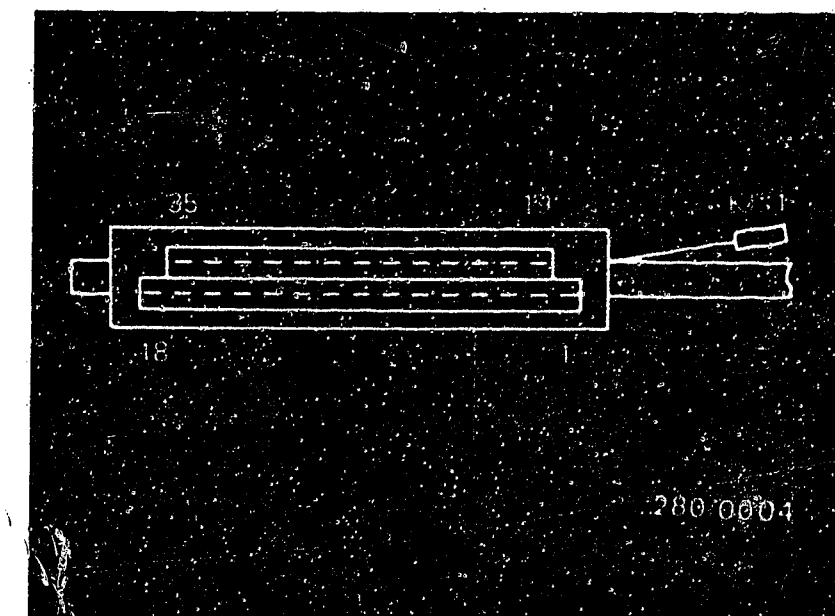


C18

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 17			
Operation		Reading	Testing
Program switch "V" in setting:	↓	Multimeter must read <u>0 ... 10 Ω</u>	<u>Components:</u> Ground connection of the output stage.
Program switch "Ω" in setting:	14		
Test equipment: Motortester or multimeter (Ω Range)		yes	<u>Function:</u> Ground connection from control unit Term. 17 <u>Malfunction:</u> Resistance not within tolerance.
Range of measurement: x 1 Ω		↓	
Connection: Blue test sockets		Continue testing with next test step.	
Operation in the vehicle: -----		no	



Top view of control unit plug

Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0Ω):

- From control unit plug Term. 17 to the ground terminal.

Eliminate contact resistances at the plug connections.

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.
- Ground terminal: On the left on the bulkhead, behind a cover.

C19


Test chart for universal test adapter
Peugeot 505 Ti-Turbo

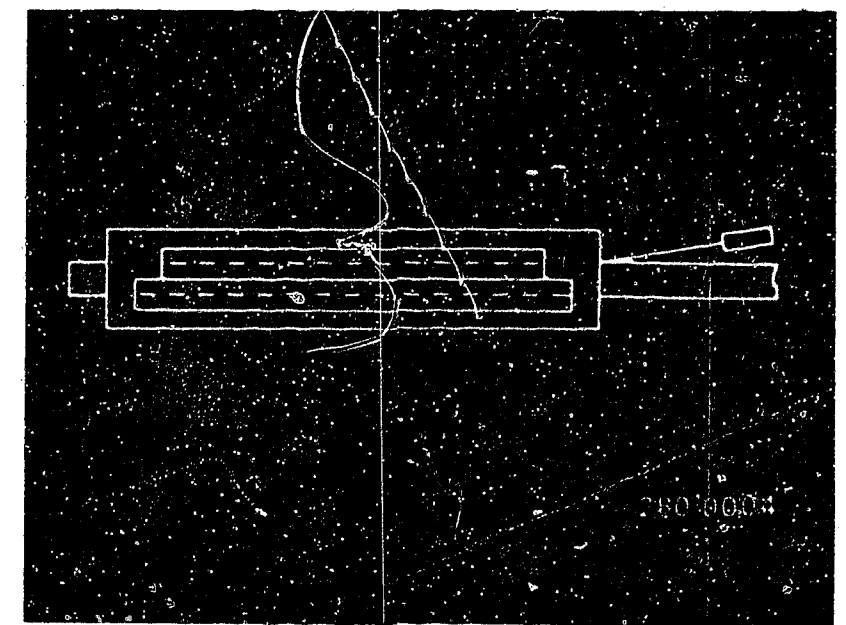


C20

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



TEST STEP 18		
Operation	Reading	Testing
Program switch "V" in setting: 	Multimeter must read <u>0 ... 10 Ω</u>	Components: Charge-air pressure switch
Program switch " Ω " in setting: 16		
Test equipment: Motortester or multimeter (Ω Range)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> yes ↓ Continue testing with next test step. </div> <div style="text-align: center;"> no ↓ </div> </div>	Function: Switch contact Measured on the control unit plug Term. 26 and Term. 5. Malfunction: Resistance not within tolerance
Range of measurement: x 1 Ω		
Connection: Blue test sockets		
Operation in the vehicle: Subject charge-air pressure switch to 1.2...1.5 bar over-pressure		



Top view of control unit plug

Trouble-shooting:

For testing, disconnect the control unit plug from the test adapter. If necessary, use a circuit diagram.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

- From the control-unit plug Term. 26 to the charge-air pressure switch Term. 22.
- From the charge-air pressure switch Term. M22 to the vehicle ground.

Eliminate contact resistances at the plug connections.

Check the charge-air pressure switch:

At atmospheric pressure: contact open, $\infty \Omega$

At 1.2...1.5 bar overpressure: contact closed, 0 Ω

If not, take out and replace the charge-air pressure switch.

- Plug in the control unit. Run the engine. Disconnect the connecting lead on the charge-pressure switch and step on the accelerator, the engine must not turn at more than 3000 min⁻¹.

Installation position of the components

- Control unit: Above the glove compartment in the passenger compartment.
- Charge-air pressure switch:
In the air pipe, on the left in front of the throttle valve

C21

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



C22

Test chart for universal test adapter
Peugeot 505 Ti-Turbo



Electrical testing with the universal test adapter is now completed.

The fuel pressure test must now be run.

The fuel pressure test is described at Coordinates D1.. D10.

6-

C23

Test chart for universal test adapter

Peugeot 505 Ti-Turbo



FUEL PRESSURE TEST

Is the electric fuel pump running?
(Test by listening)

- Is the control relay triggering O.K.?
Term. 30,15,50,1 and 31.
- Is there voltage present at Term. 87b and the electric fuel pump?
- Is the ground lead O.K.?
- In-tank pre-supply pump O.K.?

yes

Is the fuel pressure O.K.?

- Test specification:
2.3...2.7 bar

Is this specification met?

yes

Continued on D5/D6

no

Check the control relay

Turn the connecting socket around and check with the control relay connected:

- Battery voltage at Term. 30
Vehicle electrical system voltage at Term. 15, with ignition "ON"
Vehicle electrical system voltage at Term. 50 during start.
Voltage pulses from Term. 1 of the ignition coil at Term. 1.
Vehicle ground at Term. 31
- Start the engine.
If there is no voltage at Term. 87b, take out and replace the control relay.
- Is the voltage at the connection terminals for the electric fuel pump min. 12V?
If not, check the ground lead.
If yes, take out and replace the electric fuel pump.
- Check in-tank pre-supply pump.
If defective → replace.

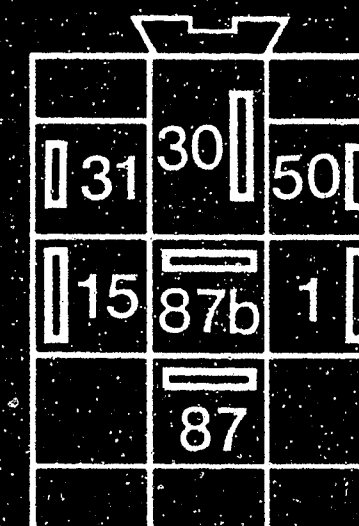
no

Check the fuel pressure

- Connect pressure gauge on pressure tester to the supply line to the fuel distributor. Use connector KDJE-P 100/14.

Caution: When undoing the screwed connection, make certain that no fuel gets on hot portions of the engine.

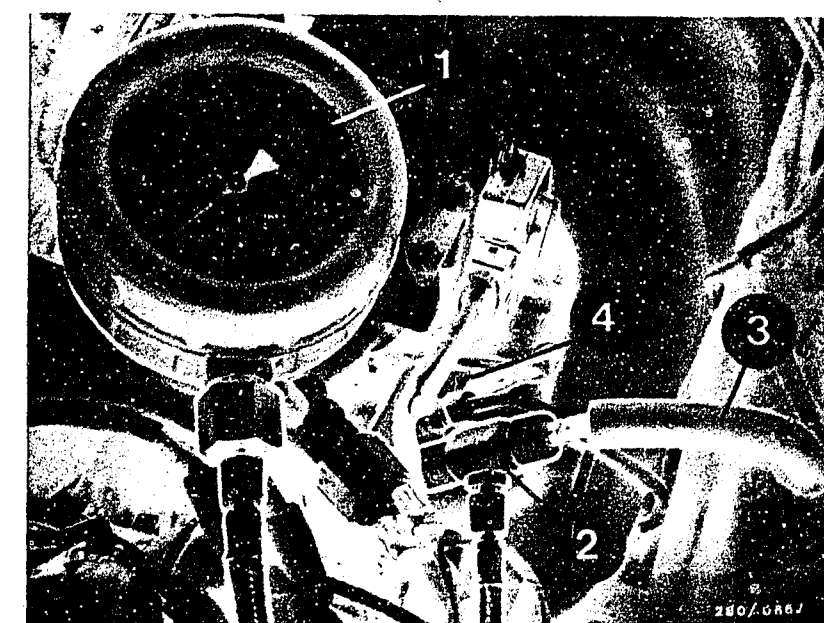
Continued on D3/D4



280/0497

Control relay -
Backside of connection socket

- 1=Pressure gauge
- 2=Connector KDJE-P100/14
- 3=Fuel delivery line from the fuel filter
- 4=Fuel distribution pipe



D1

Fuel pressure test

Peugeot 505 Ti-Turbo



D2

Fuel pressure test

Peugeot 505 Ti-Turbo



Fuel pressure test (continued)

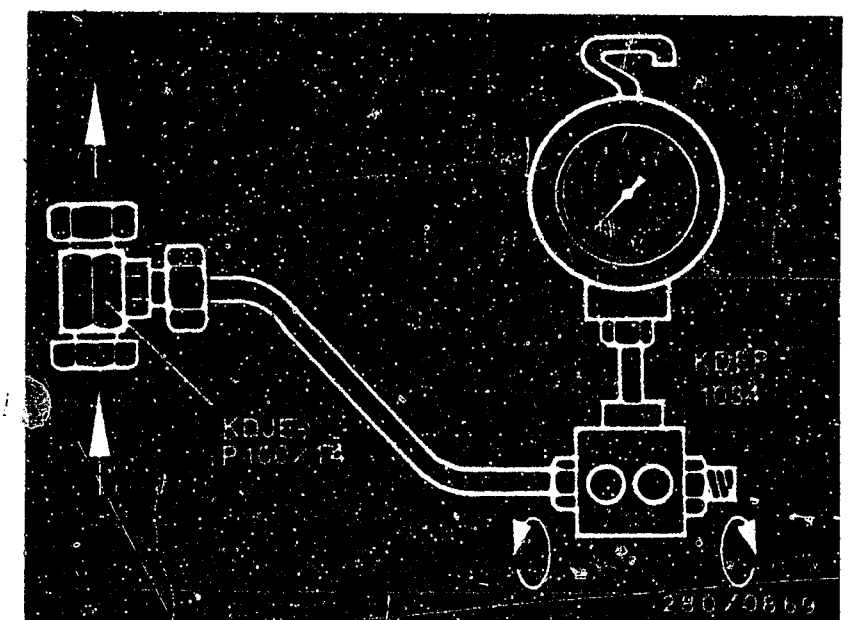
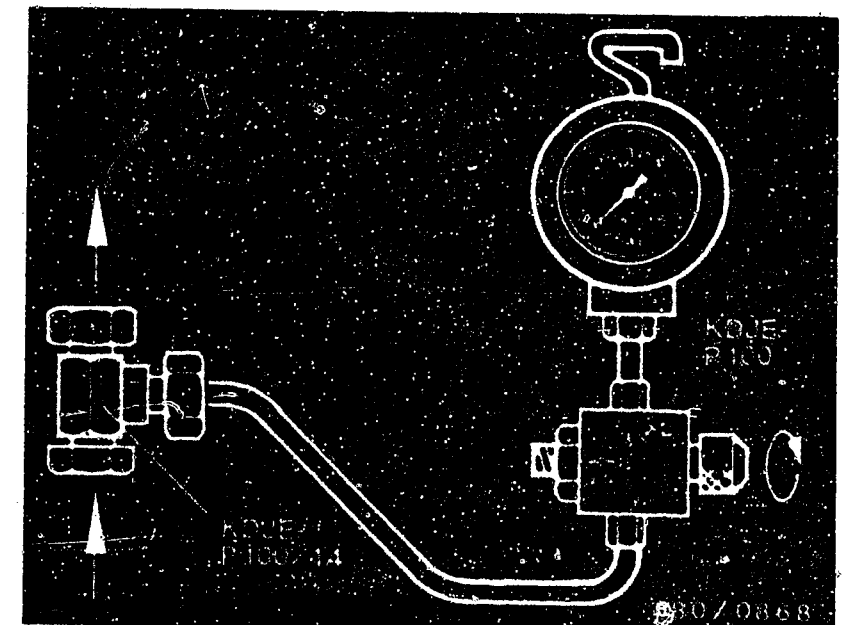
Check fuel pressure

Unscrew the supply delivery line from the fuel distribution pipe and insert connector KDJE-P 100/14. When using the pressure tester KDJE-P 100, the valve screw must be turned shut. When KDEP 1034, only the screw on the right.

Make certain connections do not leak.

yes

Continued on D5/D6



D3

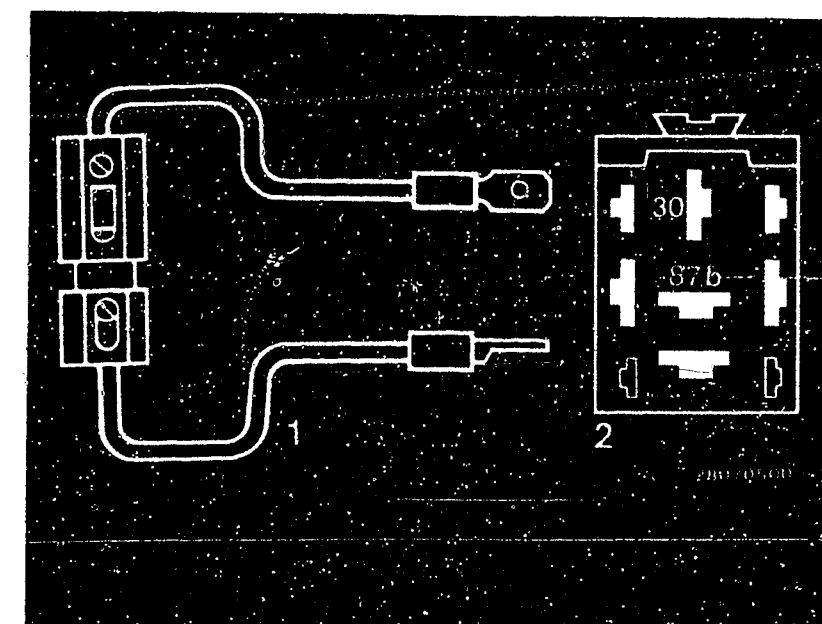
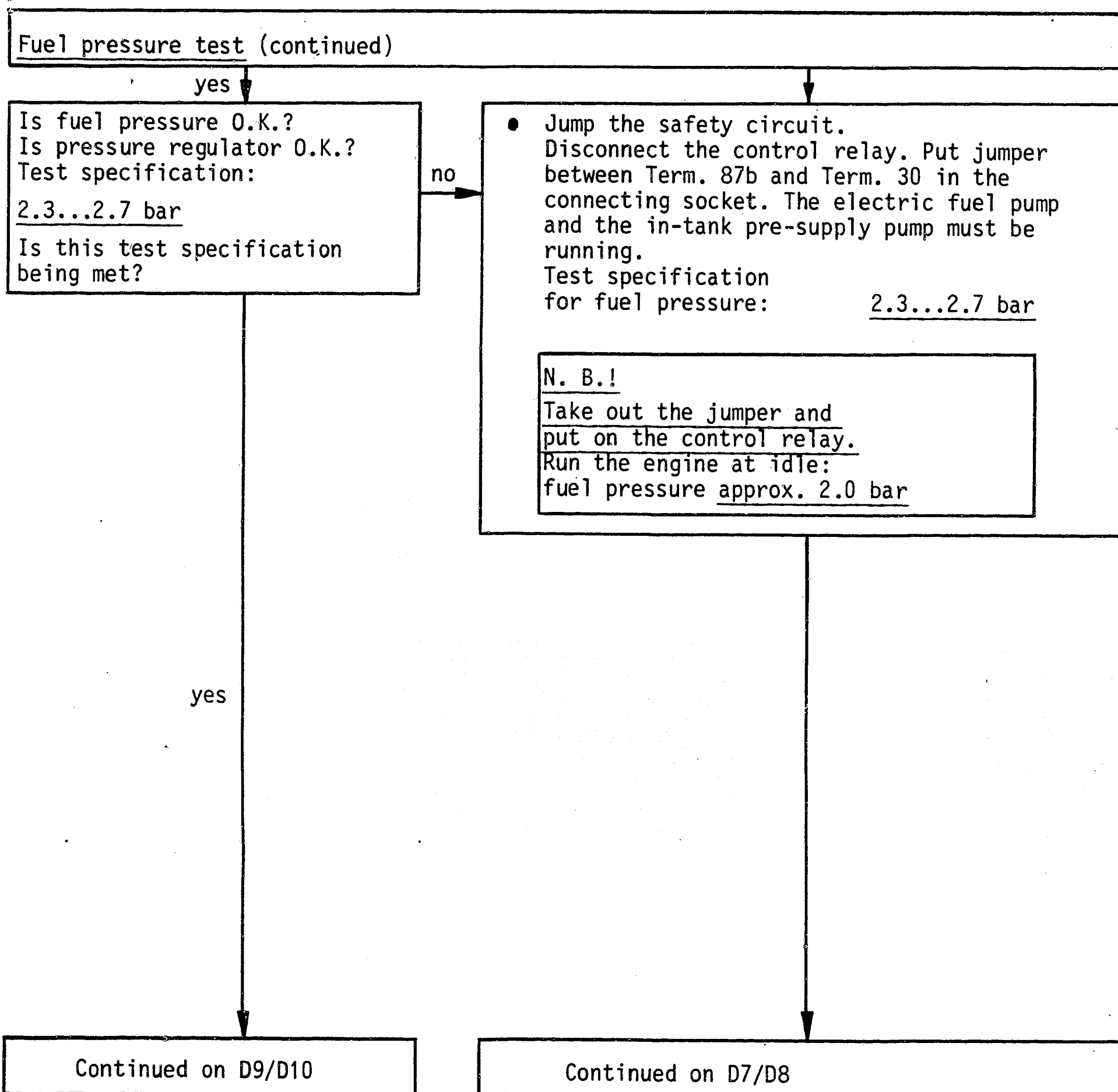
Fuel pressure test
Peugeot 505 Ti-Turbo



D4

Fuel pressure test
Peugeot 505 Ti-Turbo





1=Jumper with fuse holder and 10A fuse (user-fabricated)
2=Top view of connection socket

Installation position of the components
● Control relay:
On the left under the dashboard.

D5

Fuel pressure test
Peugeot 505 Ti-Turbo



D6

Fuel pressure test
Peugeot 505 Ti-Turbo

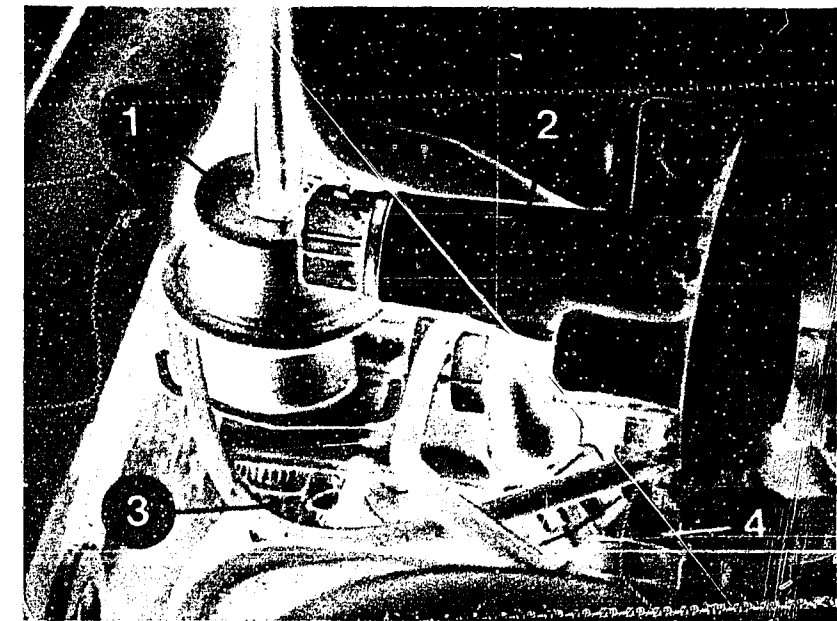


Fuel pressure test (continued)

- Check pressure regulator
Test specification for fuel pressure. 2.3...2.7 bar
If fuel pressure is less than 2.3 bar:
 - Slowly crimp off the fuel return line.
N. B.! Do not subject pressure gauge to more than 6 bar!
If the pressure rises above 4 bar, take out and replace the pressure regulator. The fuel pressure regulator is fastened to the fuel distribution pipe via two fastening screws and an O-ring. After the pressure regulator is taken out, the O-ring and the flat ring must be replaced (use set of parts 1 287 010 704).
 - Fuel delivery line, fuel filter clogged.
 - In-tank pre-supply pump is not operating.
 - Filter in the tank is clogged.
 - Corrosion in the tank.
- If the fuel pressure exceeds 2.7 bar:
- Fuel return line is clogged or crimped off.
 - Take out and replace the pressure regulator.
- N. B.!
The jumper must absolutely be removed after the test is completed, and the control relay must be put back on.

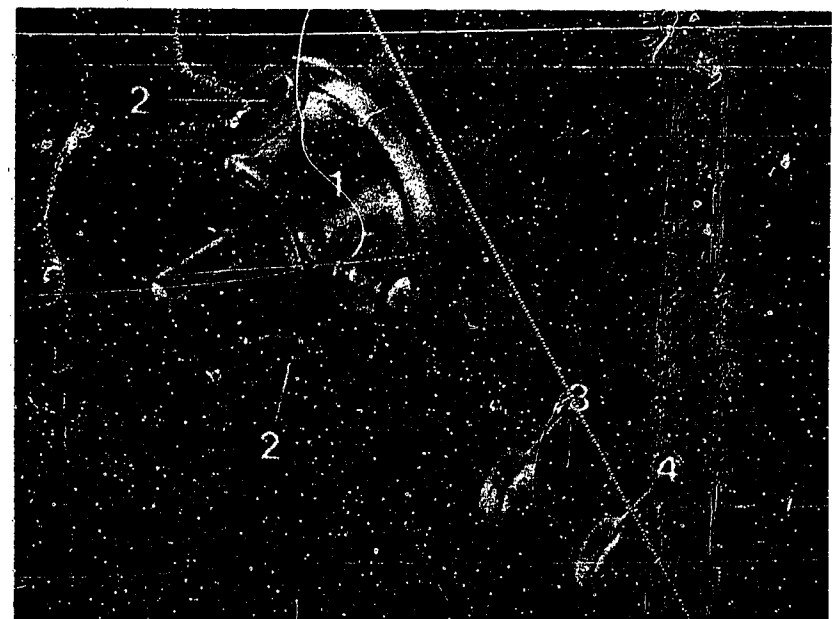
yes

Continued on D9/D10



1=Pressure regulator
2=Auxiliary-air device
3=Return hose
4=Electric fuel-injection valve

1=Pressure regulator
2=Fastening holes
3=Flat ring
4=O-ring



D7

Fuel pressure test
Peugeot 505 Ti-Turbo



D8

Fuel pressure test
Peugeot 505 Ti-Turbo



Fuel pressure test (continued)

Does the fuel pressure remain almost constant after the engine is shut off?

Test specification:

2.3...2.7 bar

Is this test specification being met?

no

The fuel pressure drops off quickly after the hot engine is shut off.

- Check fuel system for leaks:
Fuel pressure 2.3...2.7 bar

Disconnect the jumper and watch the pressure gauge.

After approx. 20 min, the fuel pressure must still be min. 1.0 bar.

If not:

- Check the connections between components and the fuel hoses and lines for leaks.
- Pressure regulator (diaphragm)
- Electric fuel-injection valves (stem seat, the valve is not closing correctly).
- Electric fuel pump (non-return valve leaks).
- Fuel filter leaks.
- Starting valve leaks.

yes

Take out the pressure gauge. Restore the connection between the fuel delivery line and the fuel distribution pipe.

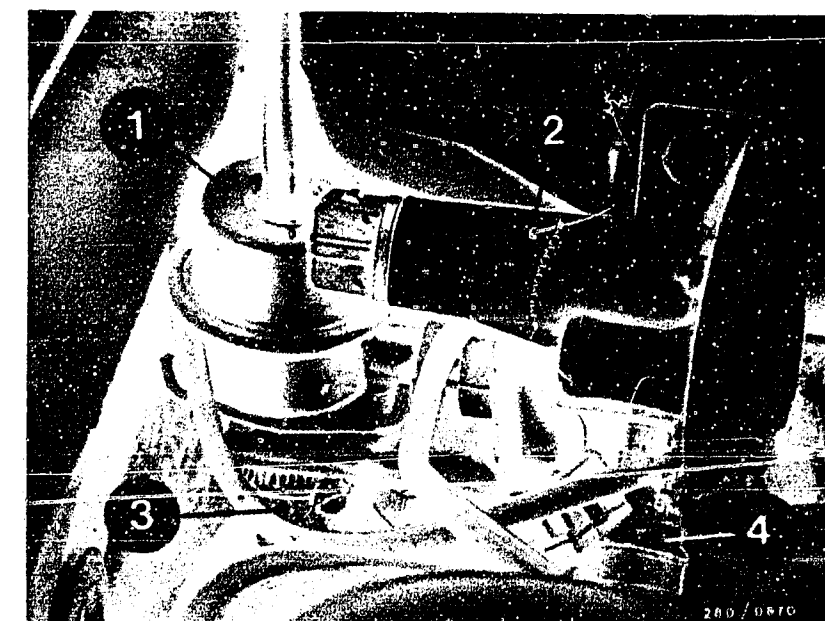
Remove the jumper and plug the control relay into the connection socket.

Testing of the fuel pressure has been completed.

If the defect has not been located or if other instructions are required for correction of the defect, continue in accordance with the trouble-shooting plan you have selected.

Detailed trouble-shooting plan (Coordinates B3/B4)

Targeted trouble-shooting plan (Coordinates B5...B8)



1=Pressure regulator

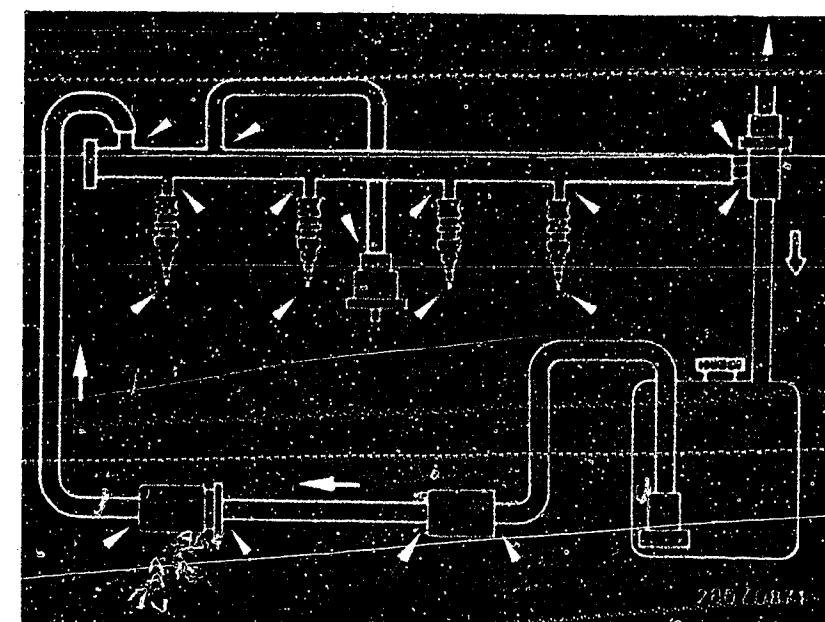
2=Auxiliary-air device

3=Return hose

4=Electric fuel-injection valve

Fuel line diagram

Arrows indicate connections between hoses and components.



D9

Fuel pressure test
Peugeot 505 Ti-Turbo



D10

Fuel pressure test
Peugeot 505 Ti-Turbo



STARTING MOTOR TURNS, ENGINE DOES NOT START OR STARTS ONLY WITH DIFFICULTY

Trouble-shooting program according to customer complaint

How to use this program

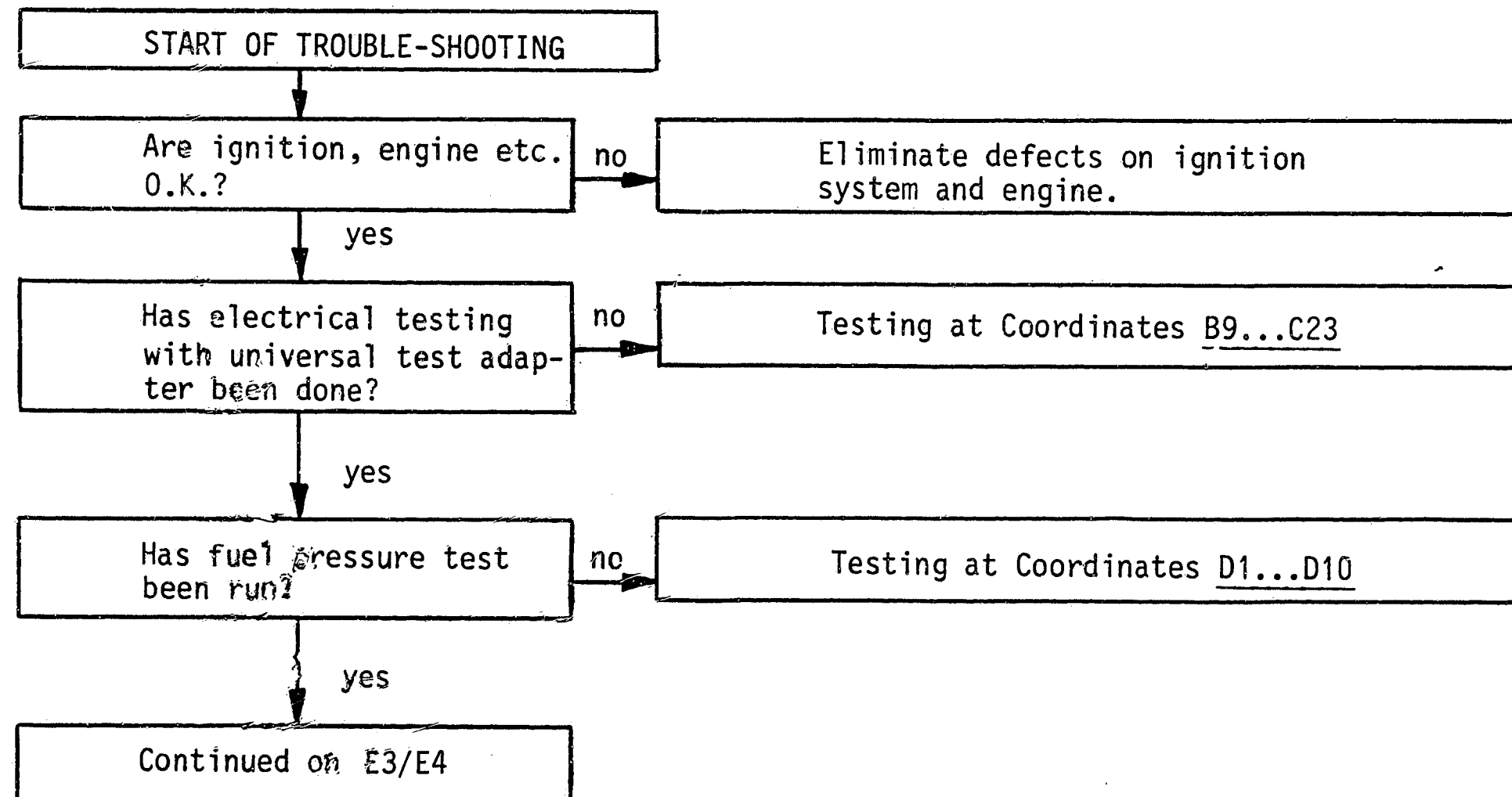
Testing is organized into 3 columns:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the component tests and adjustments.
- The column at the right shows the figures and the explanation of the items in those figures that go with the text.

If it is possible to answer the questions "yes" even without a test, proceed to the question next following.

On the other hand, if the answer to the question is "no", and a defect is suspected, you must shift to the series of boxes in the center and perform the tests indicated there.

After completion of the test, the trouble-shooting is continued at that point at which the shift was made.



E1

Engine does not start
Peugeot 505 Ti-Turbo



E2

Engine does not start
Peugeot 505 Ti-Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

Is electric starting valve
O.K.?

no

Functional test:

Check the voltage supply for the electric starting valve during start. To do this, disconnect the plug from the electric starting valve and connect a voltmeter to Term. 46 and Term. 45/ Term. 47 of the electric starting valve plug.

1. With engine temperature less than +30°C:

Voltage reading min. 6 V.

2. With engine at normal operating temperature, starting from +40°C:

voltage reading of approx. 0 V.

Check the following leads for continuity using an ohmmeter (specified value approx. 0 Ω):

Lead from the electric starting valve Term. 46 to the thermotime switch Term. W. Lead from the electric starting valve Term. 45 to thermotime switch Term. G. Lead from start valve term.47 to ignition/starting switch term.50. Check ground connection of thermo-time switch.

Check the electric starting valve electrically:

Connect ohmmeter to the electric starting valve (unplug the connecting plug):

Specified value 3.5...4.5 Ω

yes

Continued on E7/E8

Continued on E5/E6



Arrow=Electric starting valve

1=Temperature sensor II
2=Thermotime switch



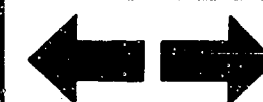
E3

Engine does not start
Peugeot 505 Ti-Turbo



E4

Engine does not start
Peugeot 505 Ti-Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

Check the electric starting valve mechanically:
Take the electric starting valve off the intake manifold and hold it into a container. (Caution: Fire hazard!)

During starting, and at ambient temperatures less than +30°C, the electric starting valve must spray fuel (max. 8 sec.). With the engine at normal operating temperature starting from +40°C, the electric starting valve must not spray fuel. The electric starting valve must likewise not spray fuel when the ignition is switched on and the pressure has built up. Run the spray test at above +40°C as follows: disconnect the plug from the thermotime switch and connect Term. W to ground.

Checking the electric starting valve for leaks:

Taken out of vehicle:

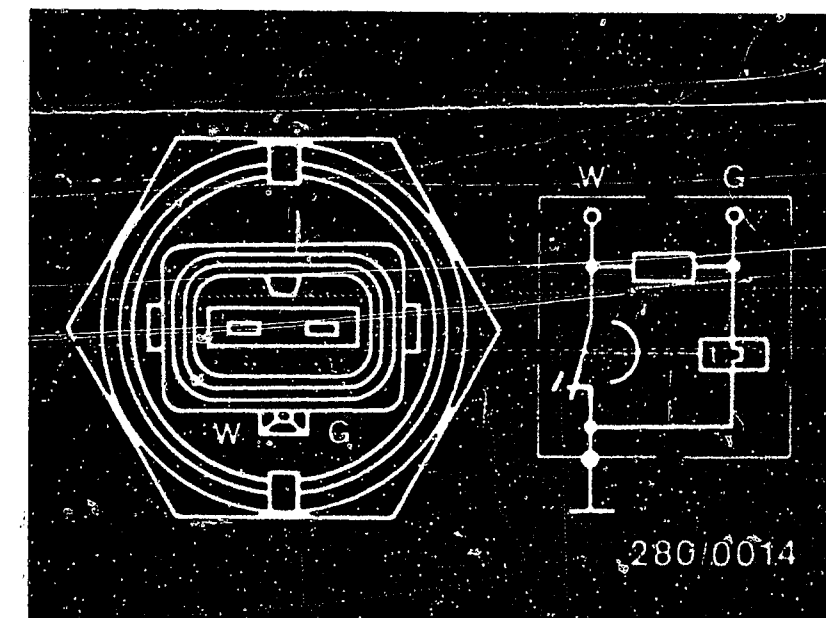
Caution: Fire hazard! Fuel and electrical lines are connected. (Set up a catch basin under the electric starting valve). Build up fuel pressure by jumping the safety circuit.

Insert a jumper between Term. 87B and Term. 30 in the connection socket of the control relay.

Test specification: A max. of 1 drop is allowable at the valve opening within one minute. N. B.!
When the test is completed, remove the jumper and plug the control relay into the connecting socket.

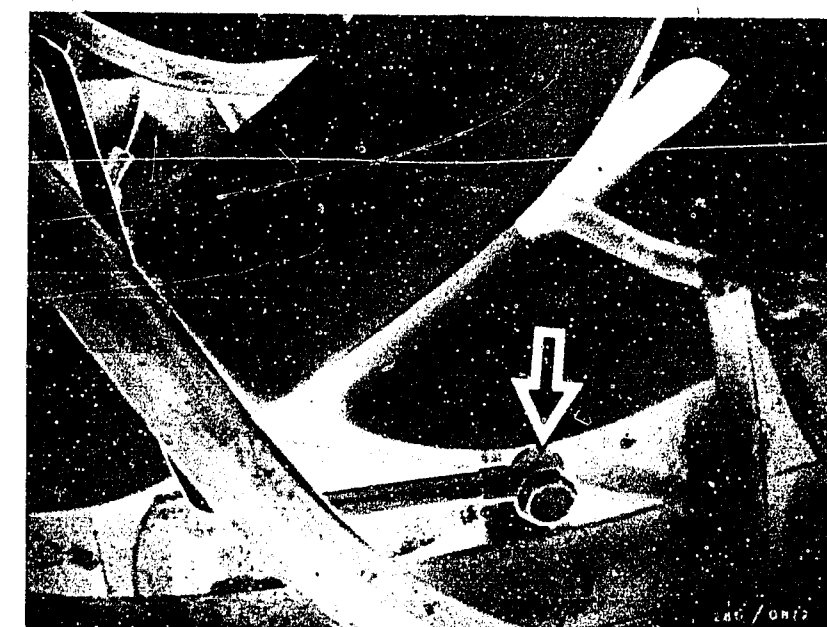
yes

Continued on E7/E8



Thermotime switch

Arrow=Electric starting valve



E5

Engine does not start
Peugeot 505 Ti-Turbo



E6

Engine does not start
Peugeot 505 Ti-Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

Is thermotime switch O.K.?

no

Electrical test

Check the thermotime switch as follows:
Disconnect plug and using an ohmmeter, measure directly on the thermotime switch:

between Term. "G" and ground
ambient temperature (less than +30°C):

25 ... 40 Ω

engine at normal operating temperature (above +40°C):

50 ... 80 Ω

between Term. "W" and ground
ambient temperature (below +30°C):

0 Ω

engine at normal operating temperature
(above +40°C):

100 ... 160 Ω

between Term. "G" and "W"
ambient temperature (below +30°C):

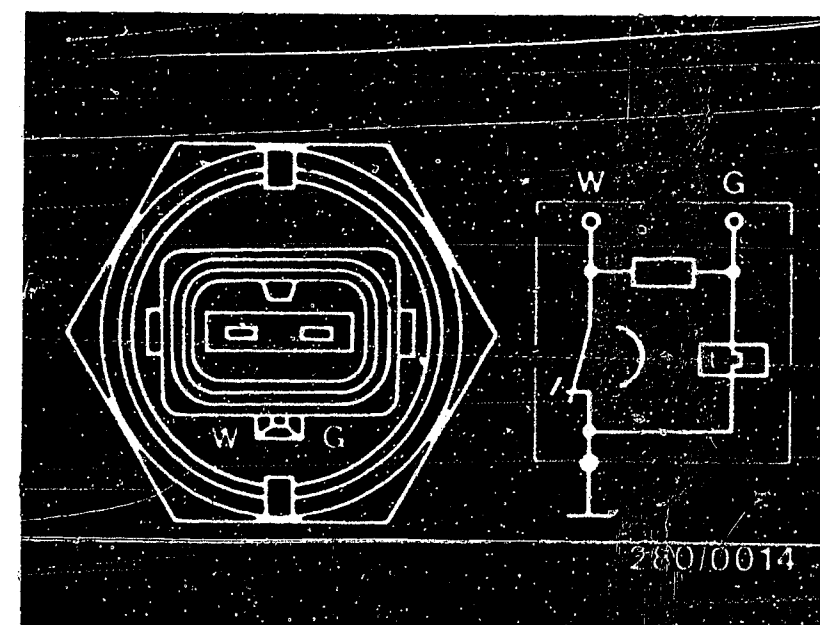
25 ... 40 Ω

engine at normal operating temperature
(above +40°C):

50 ... 80 Ω

yes

Continued on E9/E10



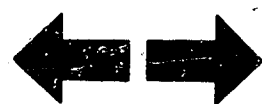
Thermotime switch

1=Temperature sensor II
2=Thermotime switch



E7

Engine does not start
Peugeot 505 Ti-Turbo



E8

Engine does not start
Peugeot 505 Ti-Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

yes

Is the auxiliary-air device O.K. mechanically?

Open cross-section:

- cold → opened?
- warm → closed?
- Drop in engine speed when the hose is clamped off? (Cold engine).

no

Checking:

- Visual inspection of the auxiliary-air device. Disconnect hoses, and look through (if necessary, use a small mirror for this). When cold, the cross-section must be partially open. When the engine is warm it must be closed. Otherwise, take out and replace the auxiliary-air device.
- Functional test on auxiliary-air device: With the engine cold, clamp off the hose to the auxiliary-air device. The engine speed must drop off. With the eng. warm, clamp off the hose to the auxiliary-air device. It is permissible for the engine speed to drop off only unnoticeably. Otherwise, take out and replace the auxiliary-air device. (Watch for the direction of through flow.)

yes

Is the electrical functioning of the auxiliary-air device (voltage supply, ground lead, resistance) O.K.?

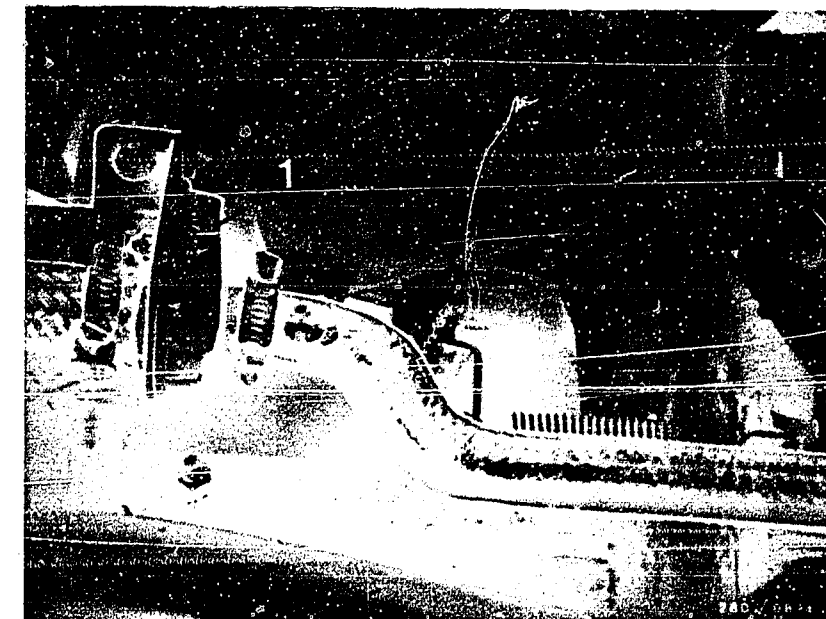
no

Start the engine.

- Voltage at the lead plug min. 12 V. If not, check the following leads for continuity (specified value approx. 0 Ω):
- From Term. 34 to the ground terminal.
- From Term. 48 to control relay Term. 87.
- Resistance of the auxiliary-air device 40...75 Ω (lead plug disconnected). If the resistance is not within tolerance, take out and replace the auxiliary-air device.

yes

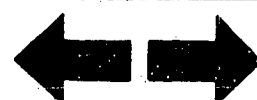
Continued on E11/E12



1=Auxiliary-air device

E9

Engine does not start
Peugeot 505 Ti-Turbo



E10

Engine does not start
Peugeot 505 Ti-Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

yes

Is the air-flow sensor O.K.
mechanically and electrically?

- Does air-flow sensor flap move freely?
- Does air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerances?

Between Term. 8 and Term. 9:

140...280 Ω

Between Term. 7 and Term. 6
(deflect the air-flow sensor flap):

80...1000 Ω

no

Checking:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap manually. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must close again down to the stop by itself. The air-flow sensor flap must not stick during opening. Watch for scraping marks. If the air-flow sensor is severely fouled inside, clean it and rub it out with a lint-free cloth. If there are scraping marks present, take out and replace the air-flow sensor.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specification: 140...280 Ω
Connect the ohmmeter to Term. 7 and Term. 6 of the air-flow sensor, and deflect the air-flow sensor flap.
Test specifications: 80...1000 Ω

N. B.! After completion of the test, the air-flow sensor must be screwed back on to the air filter housing.

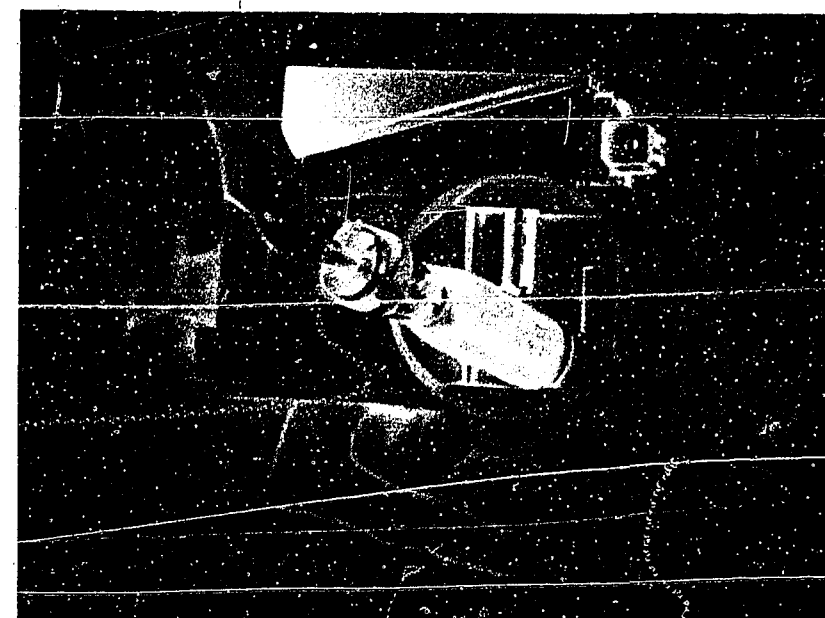
yes

Continued on E13/E14



1=Air-flow sensor
2=CO-adjusting screw

Press on the sensor flap in the air-flow sensor.



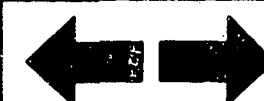
E11

Engine does not start
Peugeot 505 Ti-Turbo



E12

Engine does not start
Peugeot 505 Ti-Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

yes

Are all hose lines put on correctly, not crimped or damaged?
Visual inspection.

- Has air intake system been checked for leaks at 0.3 bar overpressure?

no

- Check if the hoses for the air intake system and the fuel line system are put on correctly, and that they are not crimped or damaged. If need be, take out and replace hoses. Eliminate leaks by using new gaskets or by tightening the connecting screws.

● Testing for leaks:

Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Remove the hose after the auxiliary-air device and using a compressed air gun, blow air (0.3 bar overpressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve completely. Brush or spray soapy water on all junction points. Leaks can also occur at the following points on the engine: oil dip-stick not stuck in firmly, defective cover seal on the oil filling fixture, etc. Bubbling or foaming indicates leaks.

yes

Continued on E15/E16



- 1=Charge-air cooler
- 2=Throttle valve assembly
- 3=Auxiliary-air device
- 4=Intake manifold
- 5=Throttle valve switch

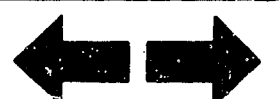
E13

Engine does not start
Peugeot 505 Ti-Turbo



E14

Engine does not start
Peugeot 505 Ti-Turbo



Starting motor turns, engine does not start or starts only with difficulty (continued)

yes

Trouble-shooting program for the customer complaint

"Starting motor turns, engine does not start or starts only with difficulty."

has been completed.

Has the defect been eliminated?

no

Further possible defects:

- Customer complaint incorrectly identified (see Coordinates B3...B8). If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart" (Coordinates B3/B4).
- Engine is not O.K. mechanically (compression, valve setting, valve timing, camshaft wear).

E15

Engine does not start
Peugeot 505 Ti-Turbo



E16

Engine does not start
Peugeot 505 Ti-Turbo



ENGINE STARTS AND THEN DIES

Trouble-shooting program according to customer complaint

How to use this program

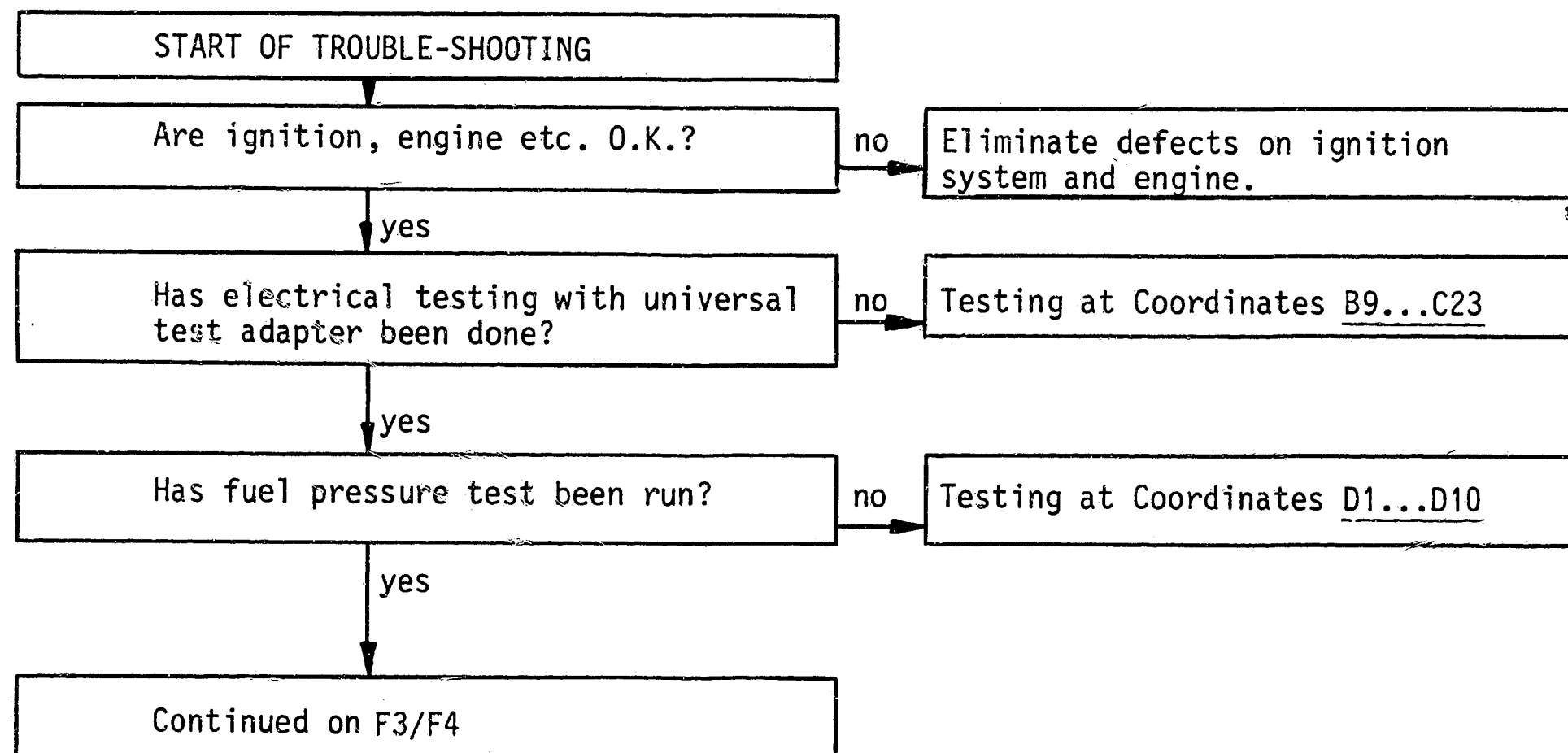
Testing is organized into 3 columns:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the component tests and adjustments.
- The column at the right shows the figures and the explanation of the items in those figures that go with the text.

If it is possible to answer the questions "yes" even without a test, proceed to the question next following.

On the other hand, if the answer to the question is "no", and a defect is suspected, you must shift to the series of boxes in the center and perform the tests indicated there.

After completion of the test, the trouble-shooting is continued at that point at which the shift was made.



F1

Engine starts and then dies
Peugeot 505 Ti-Turbo



F2

Engine starts and then dies
Peugeot 505 Ti-Turbo



Engine starts and then dies (continued)

Is the electric starting valve
O.K. with regard to leaks?
● Max. allowable 1 drop/min..

no

Checking electric starting valve for leaks:

- Taken out of vehicle
Caution: Fire hazard!
Fuel and electrical lines are connected.
Place catch basin under electric starting valve.
Build up the fuel pressure. Unplug the control
relay the socket and jump Term. 30 and Term. 87b
with a jumper cable.

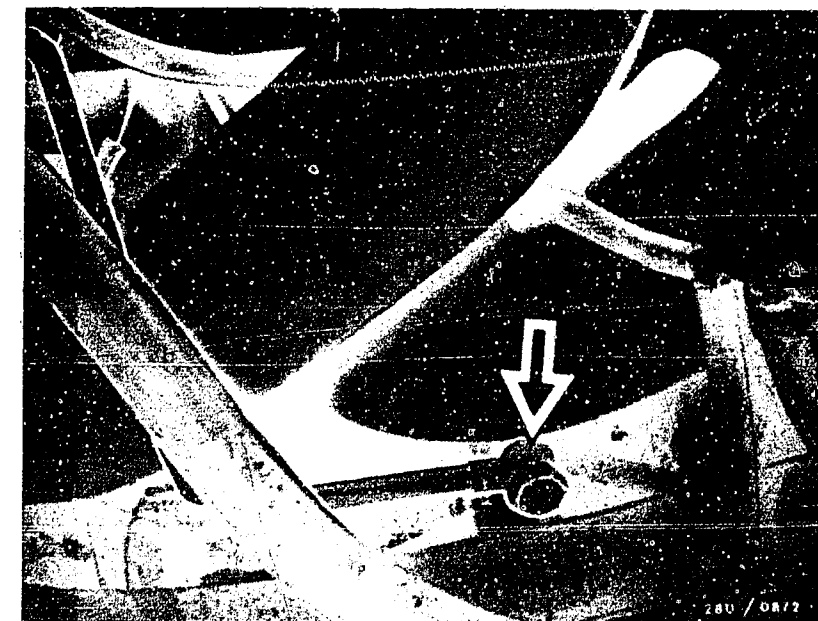
Test specification: A max. of 1 drop is
allowable at the opening of the valve within
one minute.

N. B.!

After the completion of the test, remove the
jumper and plug the control relay back into
the socket.

yes

Continued on F5/F6



Arrow = Electric starting valve

F3

Engine starts and then dies
Peugeot 505 Ti-Turbo

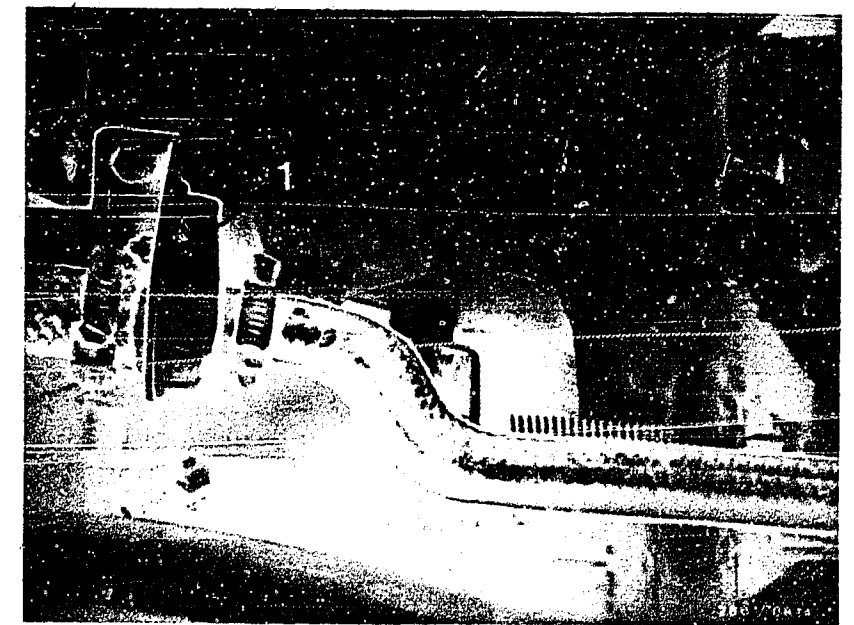
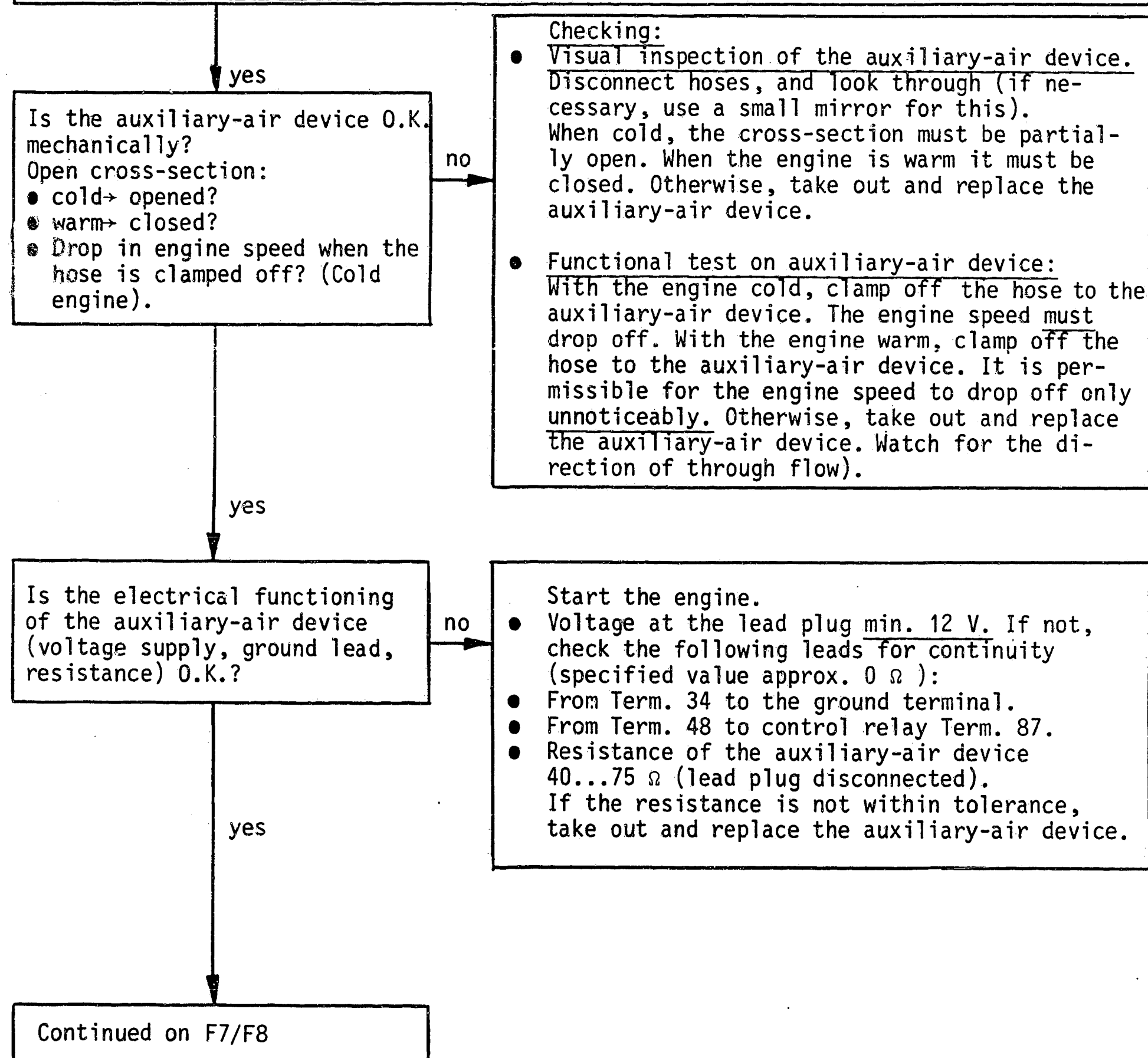


F4

Engine starts and then dies
Peugeot 505 Ti-Turbo



Engine starts and then dies (continued)



1=Auxiliary-air device

F5

Engine starts and then dies
Peugeot 505 Ti-Turbo



F6

Engine starts and then dies
Peugeot 505 Ti-Turbo



Engine starts and then dies (continued)

yes

Is the air-flow sensor O.K.
mechanically and electrically?

- Does air-flow sensor flap move freely?
- Does air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerances?

Between Term. 8 and Term. 9:

140...280 Ω

Between Term. 7 and Term. 6
(deflect the air-flow sensor flap):

80...1000 Ω

no

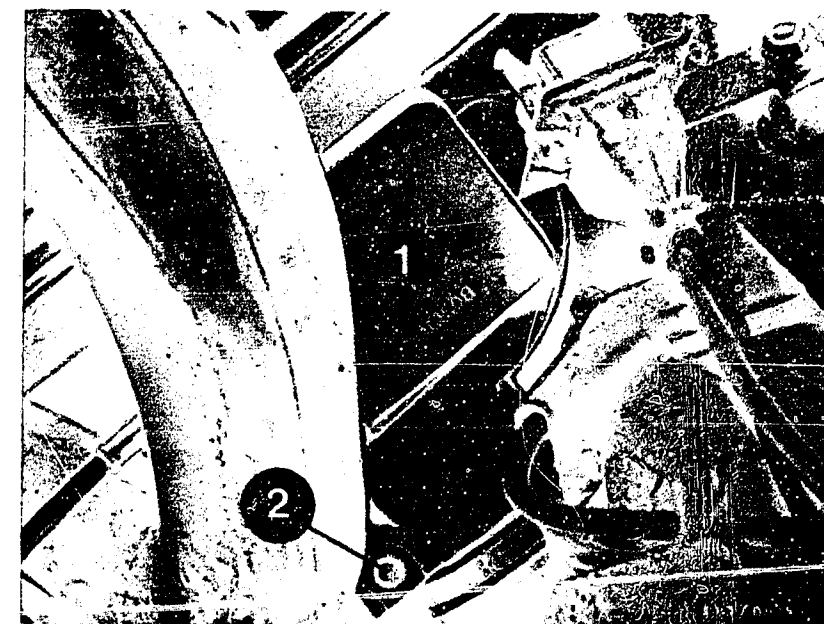
Checking:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap manually. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must close again down to the stop by itself. The air-flow sensor flap must not stick during opening. Watch for scraping marks. If the air-flow sensor is severely fouled inside, clean it and rub it out with lint-free cloths. If there are scraping marks present, take out and replace the air-flow sensor.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specification: 140...280 Ω
Connect the ohmmeter to Term. 7 and Term. 6 of the air-flow sensor, and deflect the air-flow sensor flap.
Test specification: 80...1000 Ω

N. B.! After completion of the test, the air-flow sensor must be screwed back on to the air filter housing.

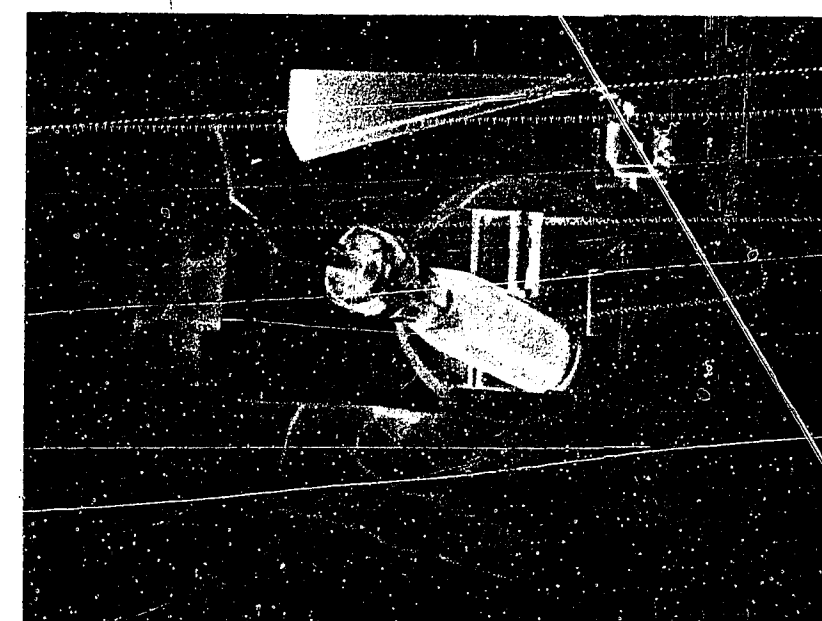
yes

Continued on F9/F10



1=Air-flow sensor
2=CO-adjusting screw

Press on the sensor flap in the air-flow sensor



F7

Engine starts and then dies
Peugeot 505 Ti-Turbo



F8

Engine starts and then dies
Peugeot 505 Ti-Turbo



Engine starts and then dies (continued)

yes

Are all hose lines put on correctly, not crimped or damaged?
Visual inspection.

- Has air intake system been checked for leaks at 0.3 bar overpressure?

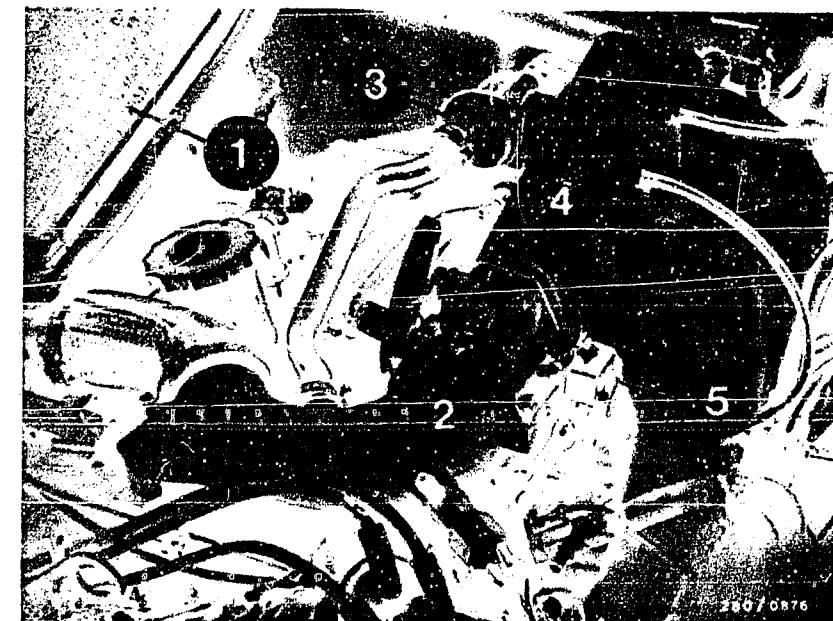
no

- Check that the hoses for the air intake system and fuel line system are put on correctly, and that they are not crimped or damaged. If need be, take out and replace hoses. Eliminate leaks by using new gaskets or by tightening the connecting screws.

- Testing for leaks:
Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Remove the hose after the auxiliary-air device and using a compressed air gun, blow air (0.3 bar overpressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve completely. Brush or spray soapy water on all junction points. Leaks can also occur at the following points on the engine: oil dip-stick not stuck in firmly, defective cover seal on the oil filling fixture, etc. Bubbling or foaming indicates leaks.

yes

Continued on F11/F12



- 1=Charge-air cooler
2=Throttle valve assembly
3=Auxiliary-air device
4=Intake manifold
5=Throttle valve switch

F9

Engine starts and then dies
Peugeot 505 Ti-Turbo



F10

Engine starts and then dies
Peugeot 505 Ti-Turbo



Engine starts and then dies (continued)

yes

Trouble-shooting program for
the customer complaint

"Engine starts and then dies,"

has been completed.

Has the defect been eliminated?

no

Further possible defects:

- Customer complaint incorrectly identified (see Coordinates B3...B8). If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart" (Coordinates B3/B4.)
- Engine is not O.K. mechanically (compression, valve setting, valve timing, camshaft wear).

F11

Engine starts and then dies
Peugeot 505 Ti-Turbo



F12

Engine starts and then dies
Peugeot 505 Ti-Turbo



ROUGH IDLE; INCORRECT IDLE SPEED

Trouble-shooting program according to customer complaint

How to use this program

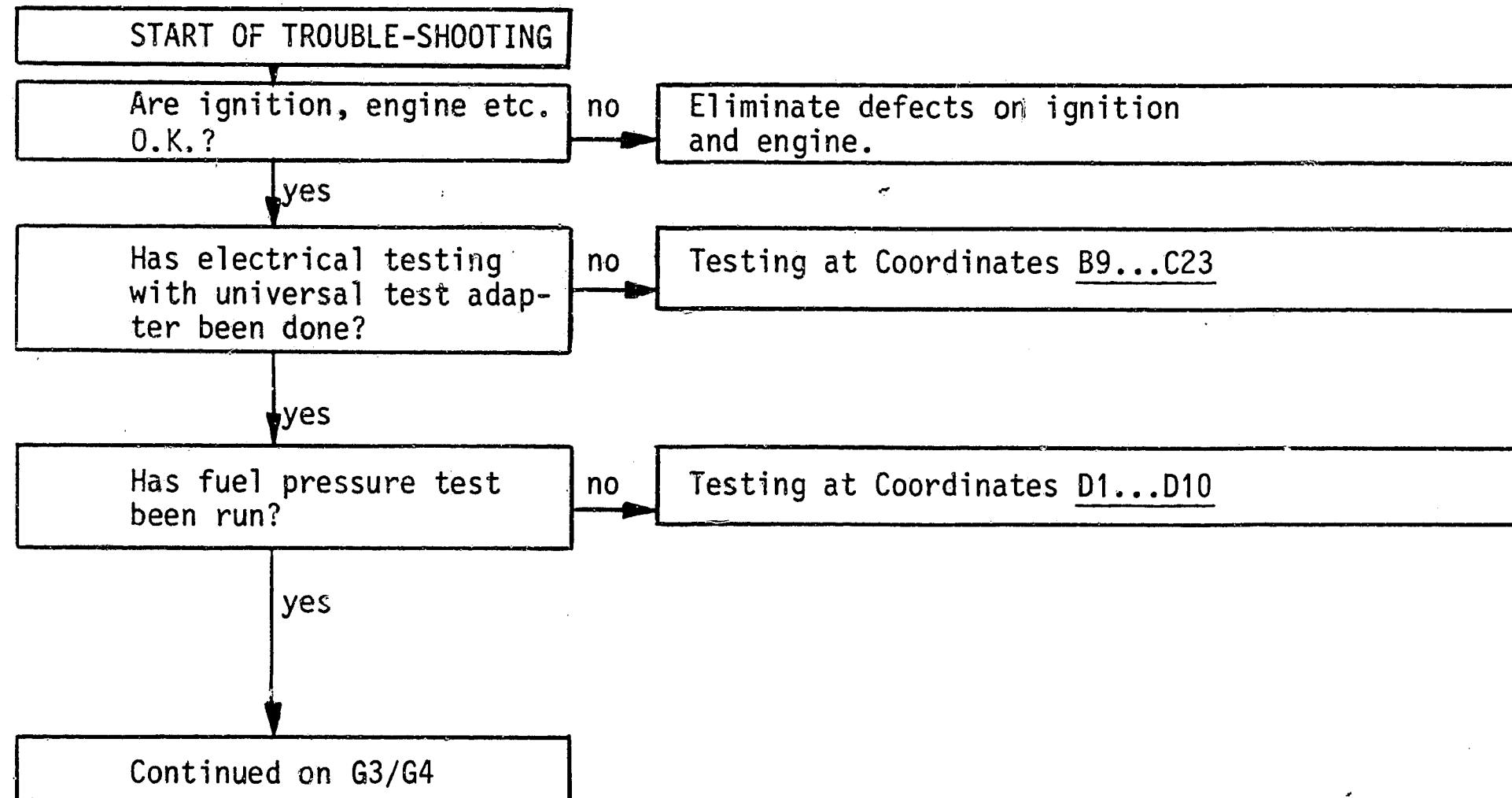
Testing is organized into 3 columns:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the component tests and adjustments.
- The column at the right shows the figures and the explanation of the items in those figures that go with the text.

If it is possible to answer the questions "yes" even without a test, proceed to the question next following.

On the other hand, if the answer to the question is "no", and a defect is suspected, you must shift to the series of boxes in the center and perform the tests indicated there.

After completion of the test, the trouble-shooting is continued at that point at which the shift was made.



G1

Rough idle
Peugeot 505 Ti-Turbo

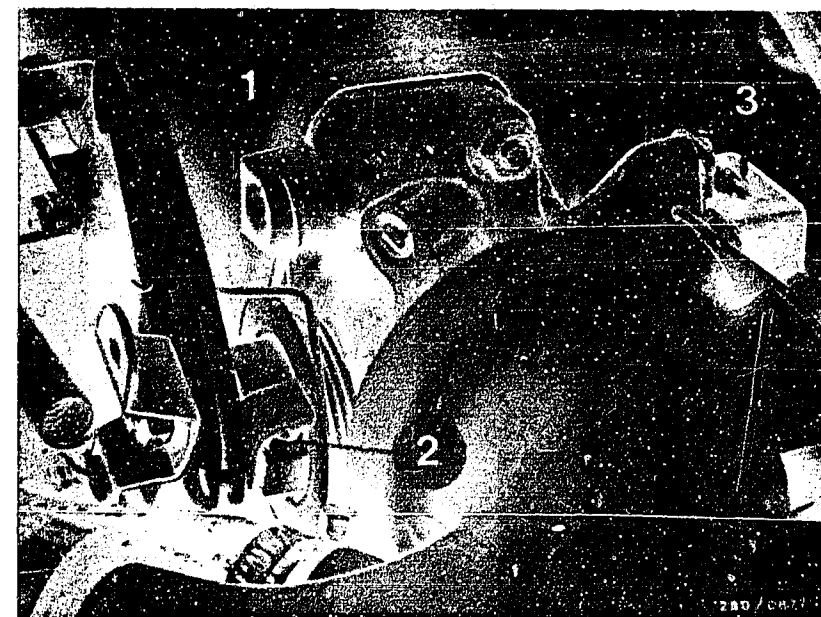
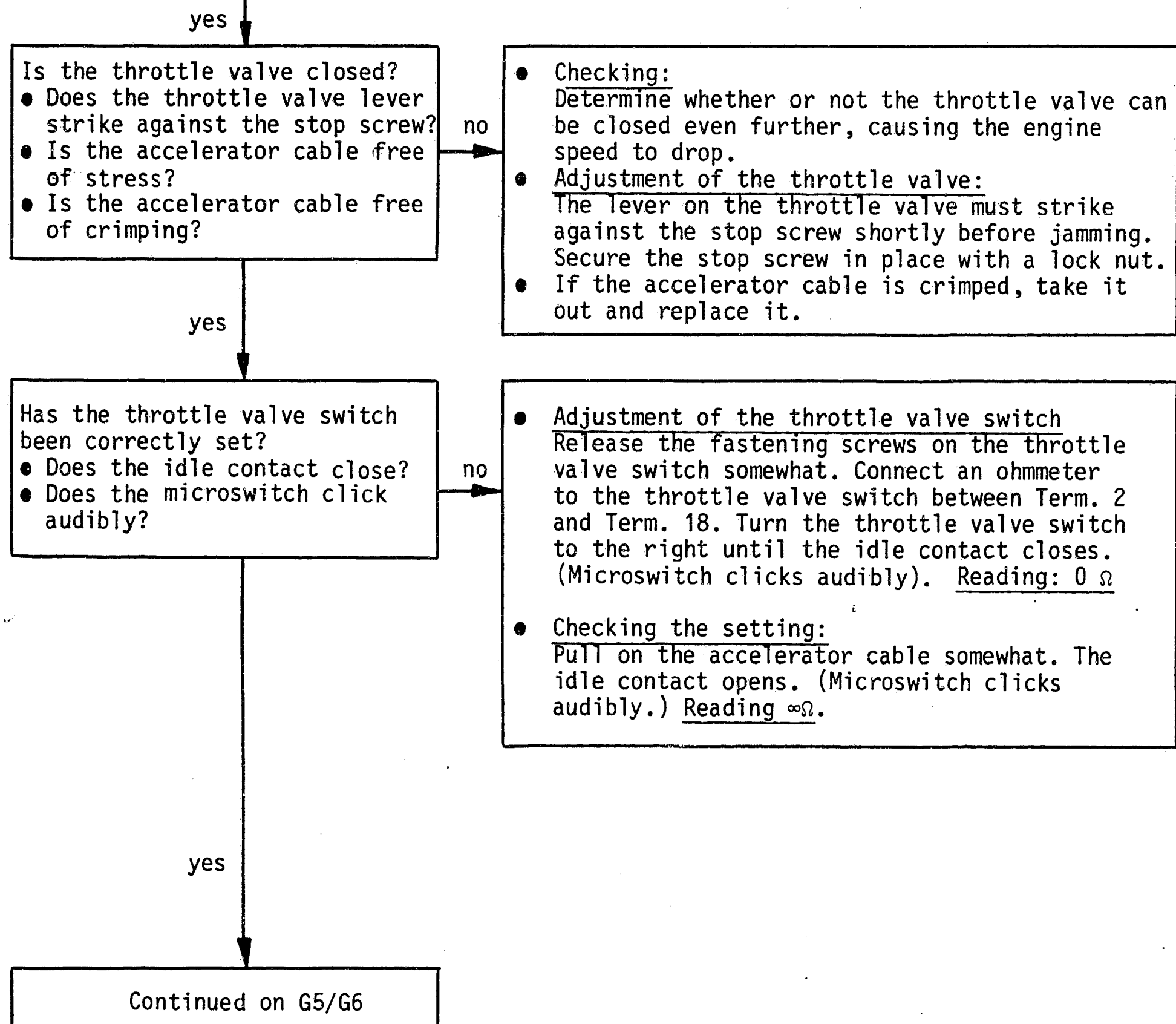


G2

Rough idle
Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)



1=Throttle valve lever
2=Throttle valve stop screw
3=Throttle valve switch



yes

Have idle speed and CO been correctly adjusted?

no

- Idle-speed and CO adjustment
Exhaust-gas adjustment with exhaust-gas analyzer with engine at normal op. temp. (approx. +80°C) and at idle speed.
On vehicles of Sweden and Switzerland version render EGR system inoperative for the idle adjustment.

- Idle speed 850...950 min⁻¹

- CO-level 0.5...1.5 vol. %

For all vehicles:

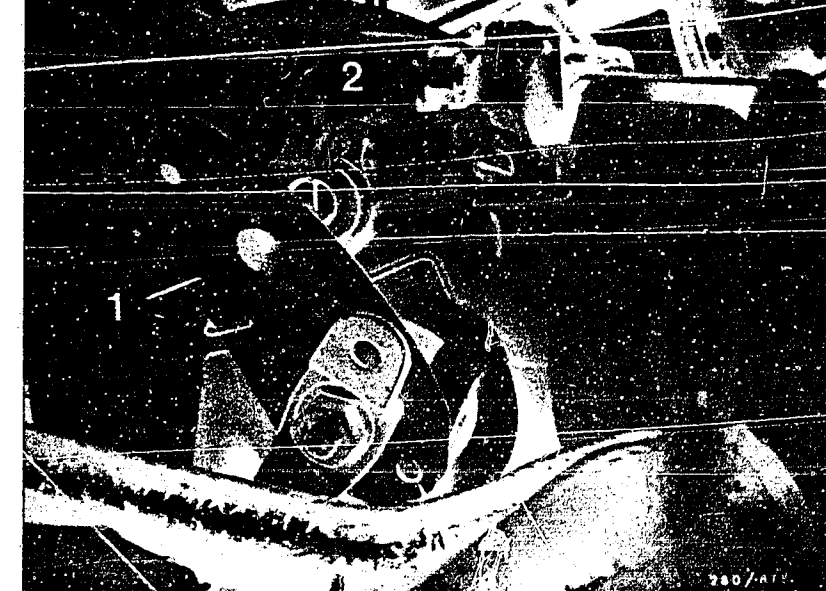
If the CO-component is too high, adjust the CO-adjusting screw in the air-flow sensor one half turn counterclockwise. (Socket hex screw, AF = 5 mm). Re-check the idle speed and the CO-level. If need be, make corrections in several steps. After the adjustment, use a new, red plug (1 280 508 012).

yes

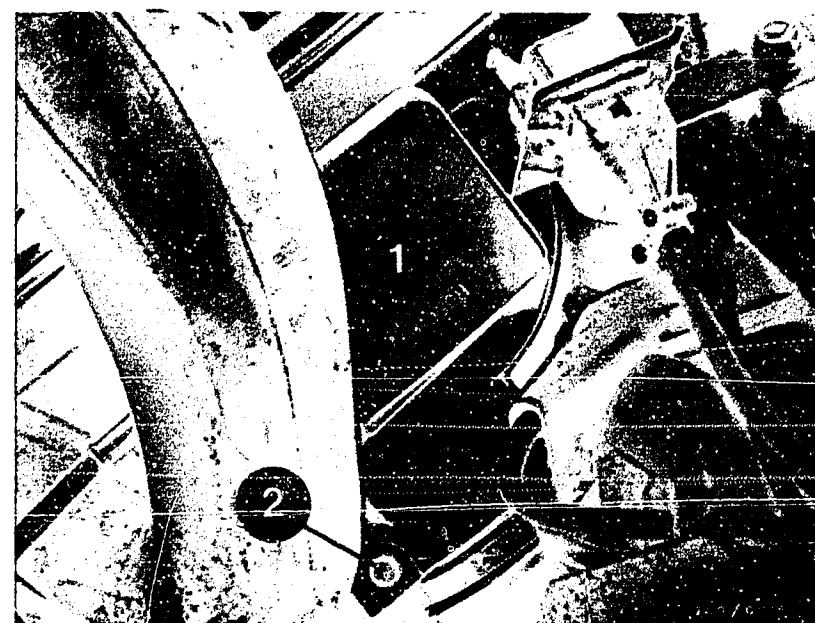
Idle speed cannot be adjusted

yes

Continued on G7/G8



1=Throttle valve lever
2=Idle-speed-adjusting screw



1=Air-flow sensor
2=CO-adjusting screw

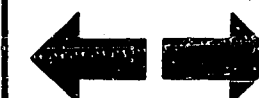
G5

Rough idle
Peugeot 505 Ti-Turbo



G6

Rough idle
Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)

Is thermotime switch O.K.?

no

Electrical test

Check the thermotime switch as follows:
Disconnect plug and using an ohmmeter, measure directly on the thermotime switch:

between Term. "G" and ground
ambient temperature (below +30°C):

25... 40 Ω

engine at normal operating temperature (above +40°C):

50 ... 80 Ω

between Term. "W" and ground
ambient temperature (below +30°C):

0 Ω

engine at normal operating temperature
(above +40°C):

100 ... 160 Ω

between Term. "G" and "W"
ambient temperature (below +30°C):

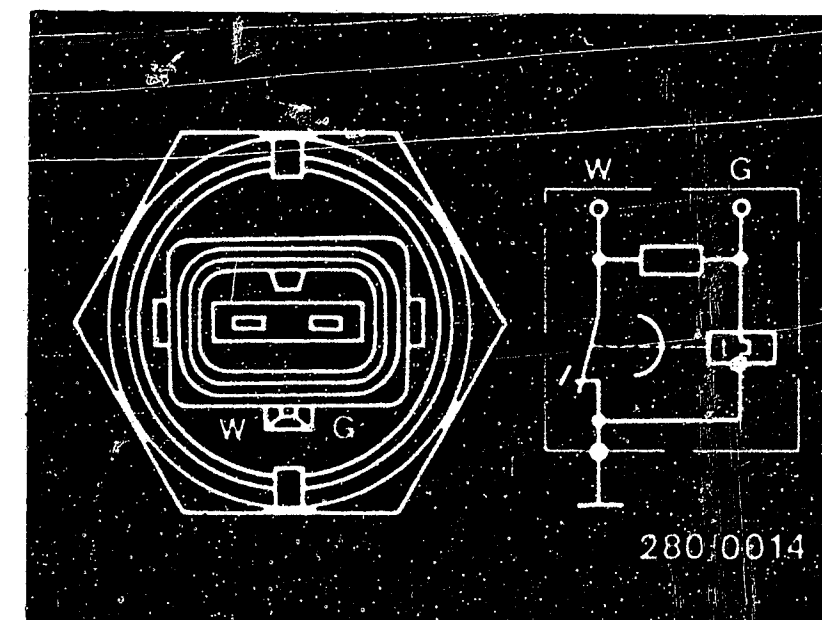
25 ... 40 Ω

engine at normal operating temperature
(above +40°C):

50 ... 80 Ω

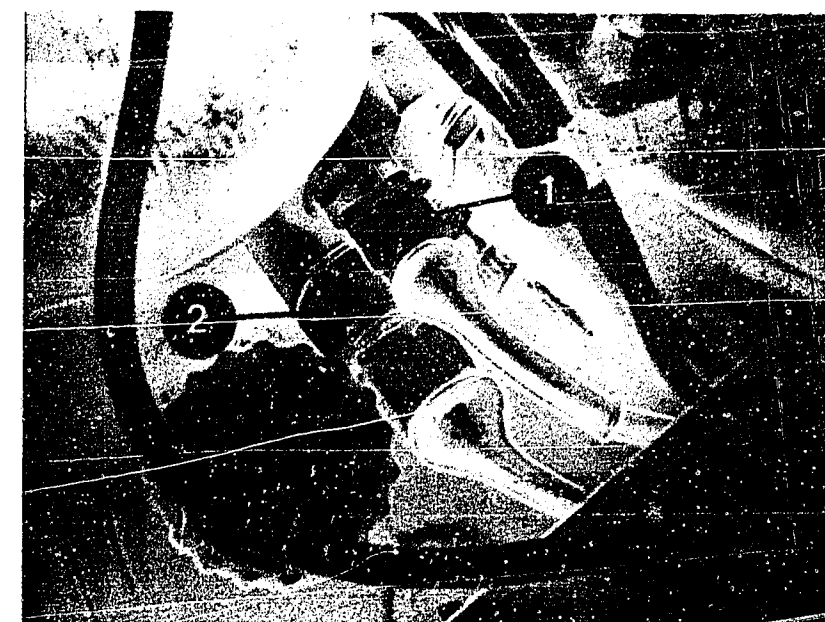
yes

Continued on G9/G10



Thermotime switch

1=Temperature sensor II
2=Thermotime switch



G7

Rough idle
Peugeot 505 Ti-Turbo



G8

Rough idle
Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)

Is the electric starting valve
O.K. with regard to leaks?
● Max. allowable 1 drop/min.

no

Checking electric starting valve for leaks:

- Taken out of vehicle
Caution: Fire hazard!
Fuel and electrical lines are connected.
Place catch basin under electric starting valve.
Build up the fuel pressure. Unplug the control
relay from the socket and jump Term. 30 and
Term. 87b with a jumper cable.

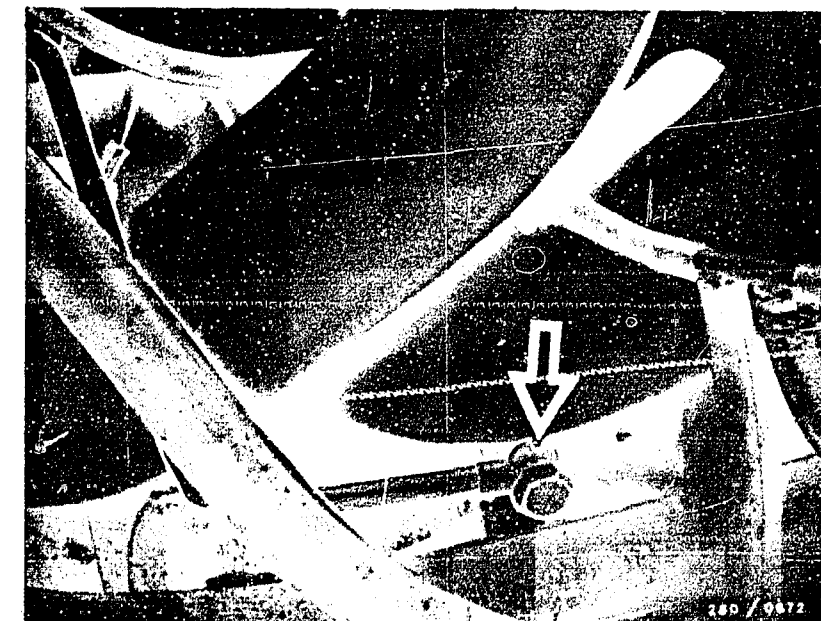
Test specification: A max. of 1 drop is
allowable at the opening of the valve within
one minute.

N.B.!

After the completion of the test, remove the
jumper and plug the control relay back into
the socket.

yes

Continued on G11/G12



Arrow = Electric starting valve

G9

Rough idle

Peugeot 505 Ti-Turbo



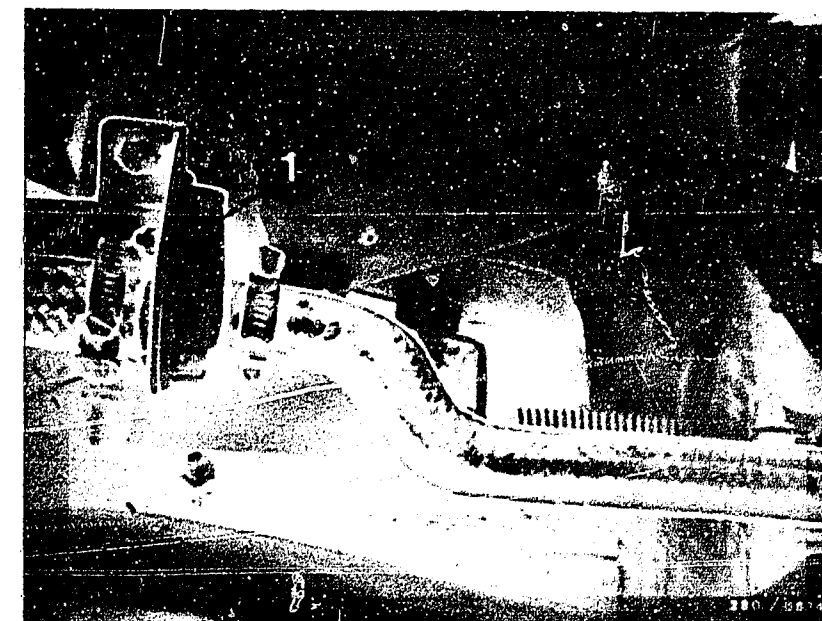
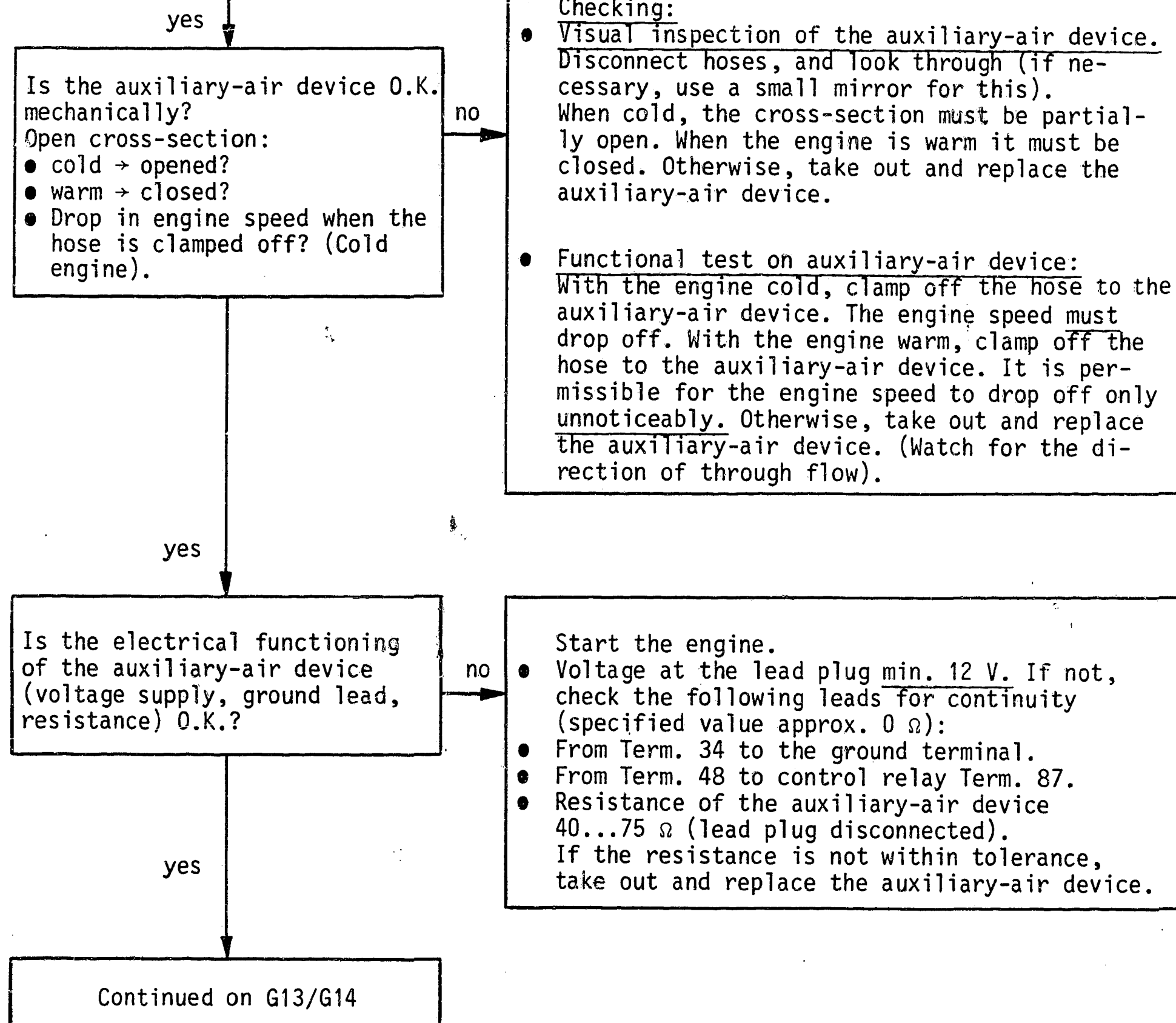
G10

Rough idle

Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)



1=Auxiliary-air device

G11

Rough idle

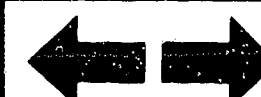
Peugeot 505 Ti-Turbo



G12

Rough idle

Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)

yes

Has the functioning of the electric fuel-injection valves been checked?

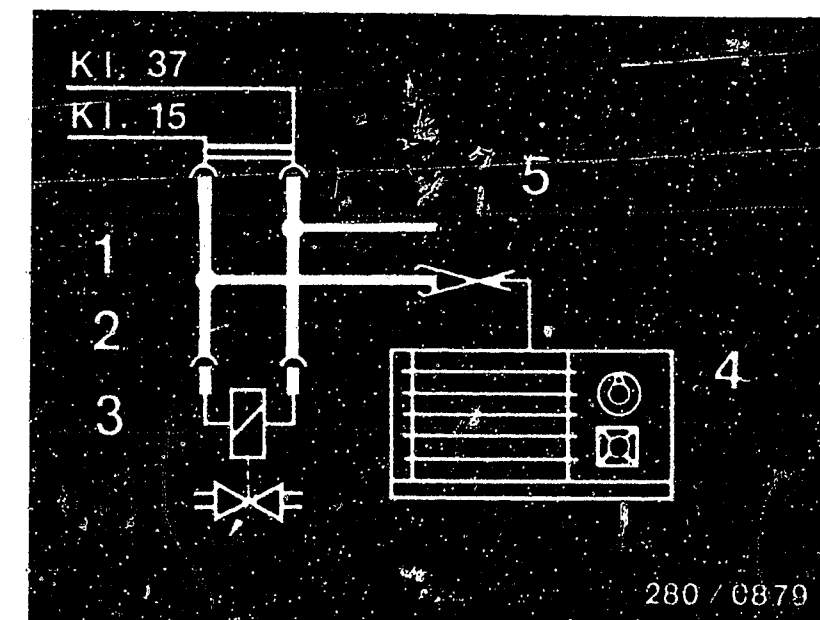
- Are the fuel-injection pulses free of interference or missing?
- Are the leads laid properly?
- Are the plug connections free of loose contacts?

no

- Connect the test lead as follows:
Connect the 2-pole plug connections for the test lead between an electric fuel-injection valve and its connecting lead.
Of the two other connecting terminals for the test lead, join only one to the special input on the motortester.
- Caution!
The free connection terminal must not come into contact with the vehicle body ground!
- If connected correctly, the fuel-injection pulse shown at the right for a current-controlled output stage becomes visible on the oscilloscope at more than idle speed. Using the test lead, it is possible to test the fuel-pulses on the electric fuel-injection valves using an ignition oscilloscope while the engine is running. If the pattern shown at the right is not obtained, or if deviations (interference, missing, etc.) can be seen, check the other electric fuel-injection valves also.
- For interference: check how the leads were laid.
- For missing: eliminate loose contacts in leads or in the plug connections.

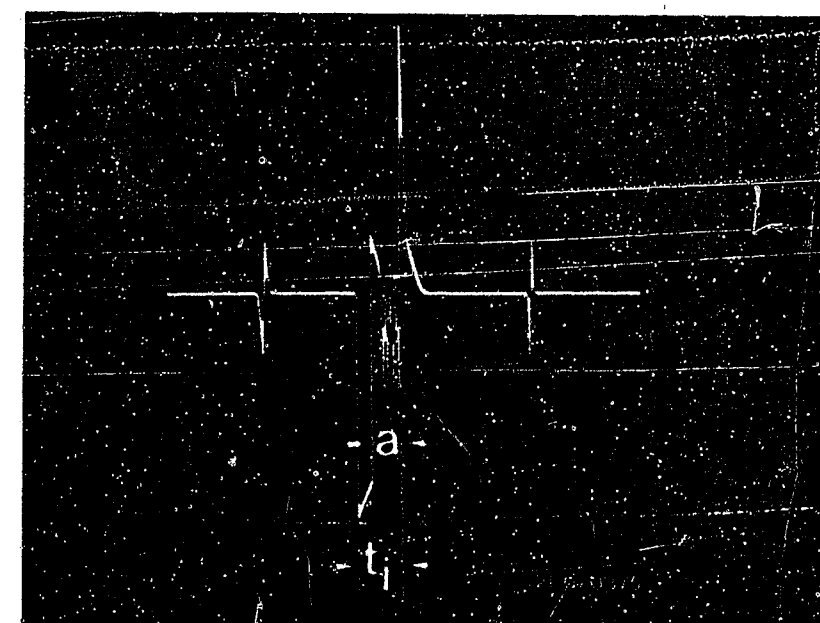
yes

Continued on G15/G16



- 1=Connection plug for valve lead
- 2=Test lead 1 684 463 093
- 3=Electric fuel-injection valve
- 4=Motortester
- 5=free connection

a=Pulse length (dependent on engine load)
t_i=Fuel-injection pulse



G 13

Rough idle

Peugeot 505 Ti-Turbo



G 14

Rough idle

Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)

yes

Are the electric fuel-injection valves O.K. mechanically?

- Does the engine speed drop off when individual fuel-injection valves are disconnected?
- Are O-rings O.K.?
- Repair electric fuel-injection valves.

no

With the engine running, disconnect the electric fuel-injection valve plugs from the valves individually, one after the other, and plug them back on. If an electric fuel-injection valve is good, the engine speed must drop.

N. B.!

When an electric fuel-injection valve is changed, electric fuel-injection valve 0 280 150 200 must be put in. If the electric fuel-injection valves are functioning well, but the O-rings are defective, proceed as follows:

- Instructions for repair

Take out the fuel distribution pipe.

Disconnect electric lead.

Shove the holding brackets carefully out of the slot and pull the electric fuel-injection valve out of the fuel distribution pipe

Caution!

Catch the fluid that runs out.

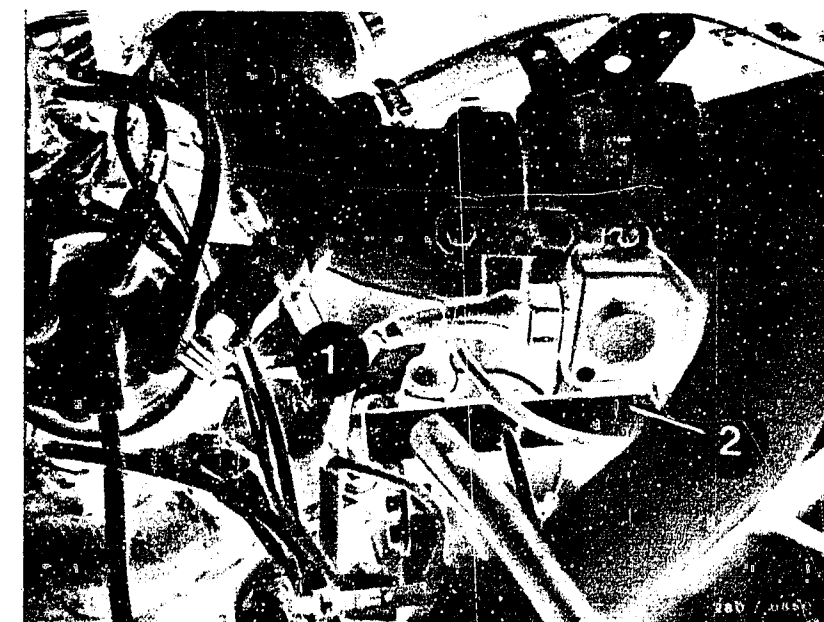
Do not allow it to drip on hot portions of the engine.

N. B.!

The protective sleeve must not be pried off.

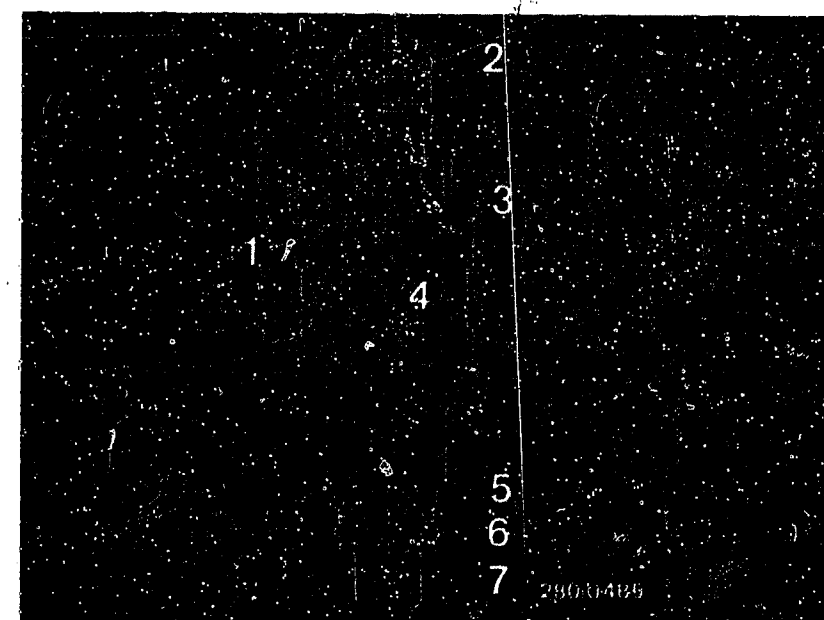
yes

Continued on G17/G18



1=Electric fuel-injection valve
2=Fuel distribution pipe

1=FD marking
2=Top O-ring
3=Part No.
4=Electric fuel-injection valve
5=Support disc
6=Bottom O-ring
7=Protective sleeve



G15

Rough idle
Peugeot 505 Ti-Turbo



G16

Rough idle
Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)

yes

Repairing electric fuel-injection valves.

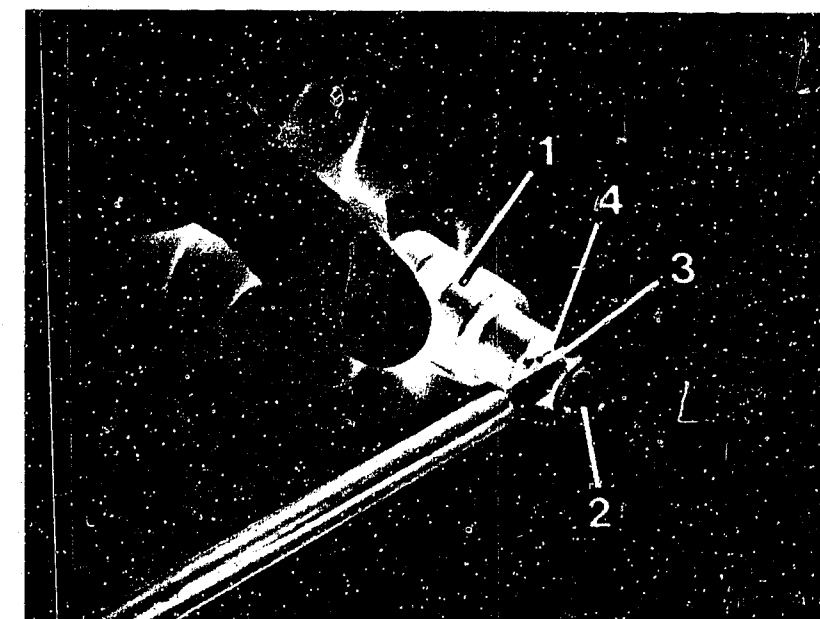
- Are the protective sleeve and the O-ring O.K.?

no

Cut the bottom O-ring (intake manifold) to pieces. Caution! Do not damage the protective sleeve. Pull a new O-ring over the protective sleeve and its shoulder. Do not damage any parts in so doing. Use set of parts 1 287 010 704. When working on the electric fuel-injection valves, do not damage the valve needle. If the top O-ring (fuel distribution pipe connection) is swollen or damaged, it must also be taken out and replaced.

yes

Continued on G19/G20



- 1=Electric fuel-injection valve
- 2=Protective sleeve
- 3=bottom O-ring
- 4=Support disc

G17

Rough idle
Peugeot 505 Ti-Turbo



G18

Rough idle
Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does air-flow sensor flap move freely?
- Does air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerances?

Between Term. 8 and Term. 9:

140...280 Ω

Between Term. 7 and Term. 6 (deflect the air-flow sensor flap):

80...1000 Ω

no

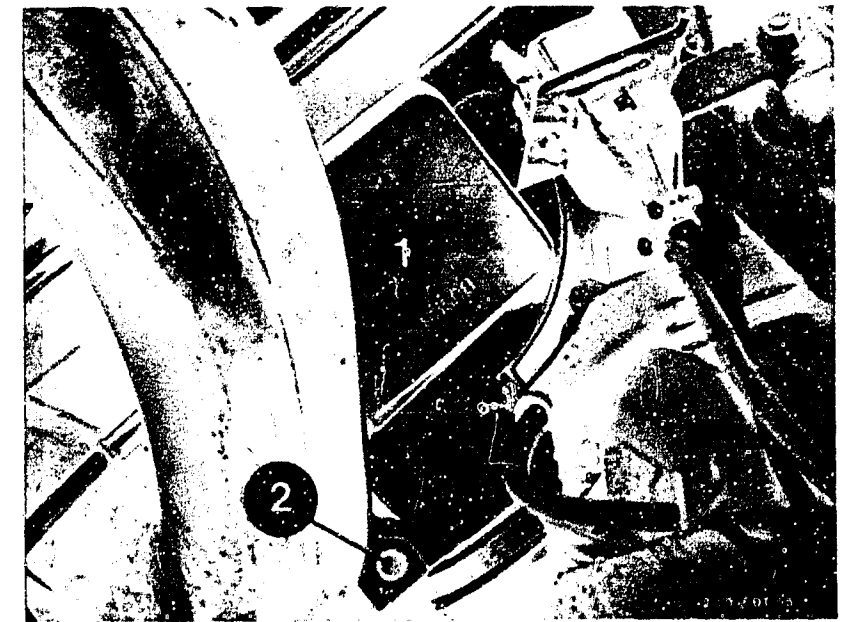
Checking:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap manually. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must close again down to the stop by itself. The air-flow sensor flap must not stick during opening. Watch for scraping marks. If the air-flow sensor is severely fouled inside, clean it and rub it out with lint-free cloth. If there are scraping marks present, take out and replace the air-flow sensor.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specifications: 140...280 Ω
Connect the ohmmeter to Term. 7 and Term. 6 of the air-flow sensor, and deflect the air-flow sensor flap.
Test specifications: 80...1000 Ω

N. B.! After completion of the test, the air-flow sensor must be screwed back on to the air filter housing.

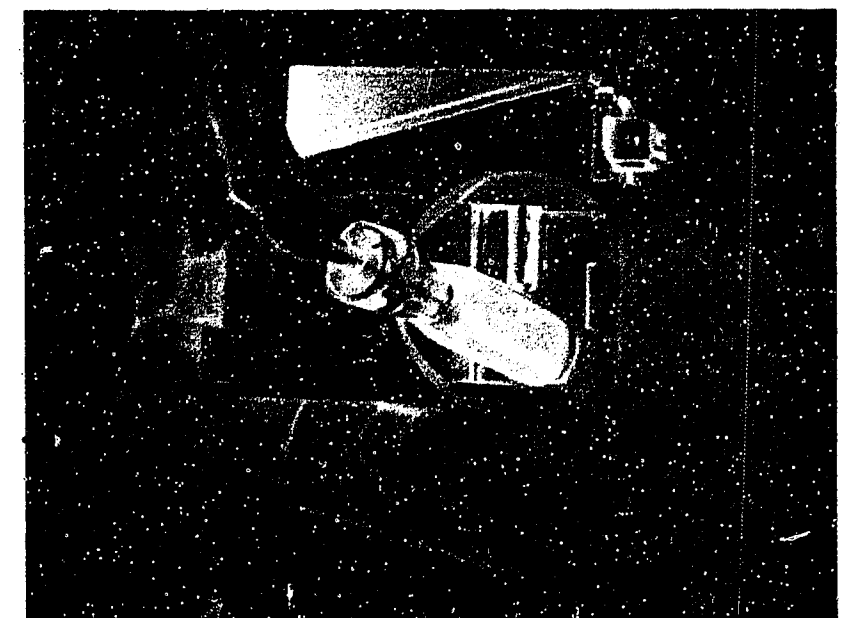
yes

Continued on G21/G22



1=Air-flow sensor
2=C0-Adjusting screw

Press on the sensor flap in the air-flow sensor.



G 19

Rough idle
Peugeot 505 Ti-Turbo



G 20

Rough idle
Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)

yes

Are all hose lines put on correctly, not crimped or damaged?
Visual inspection.

- Has air intake system been checked for leaks at 0.3 bar overpressure?

no

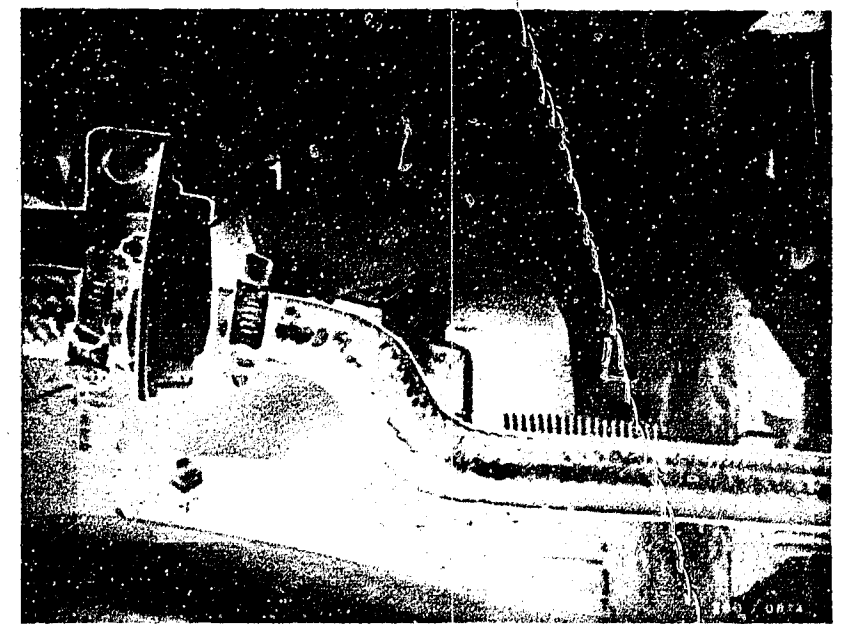
- Check if the hoses for the air intake system and the fuel line system are put on correctly, and that they are not crimped or damaged. If need be, take out and replace hoses. Eliminate leaks by using new gaskets or by tightening the connecting screws.

● Testing for leaks:

Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Remove the hose after the auxiliary-air device and using a compressed air gun, blow air (0.3 bar overpressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve completely. Brush or spray soapy water on all junction points. Leaks can also occur at the following points on the engine: oil dip-stick not stuck in firmly, defective cover seal on the oil filling fixture, etc.. Bubbling or foaming indicates leaks.

yes

Continued on G23/G24



1=Auxiliary-air device

G21

Rough idle

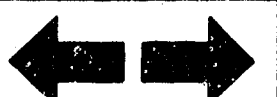
Peugeot 505 Ti-Turbo



G22

Rough idle

Peugeot 505 Ti-Turbo



Rough idle, incorrect idle speed (continued)

- yes
- Have idle speed and CO been correctly adjusted? (repetition)

no

- Idle-speed and CO adjustment
Exhaust-gas adjustment with exhaust-gas analyzer with engine at normal op. temp. (approx. +80°C) and at idle speed.
On vehicles of Sweden and Switzerland version render EGR system inoperative for the idle adjustment.

- Idle speed 850...950 min⁻¹

- CO-level 0.5...1.5 vol. %

For all vehicles:

If the CO-component is too high, adjust the CO-adjusting screw in the air-flow sensor one half turn counterclockwise. (Socket hex screw, AF = 5 mm). Re-check the idle speed and the CO-level. If need be, make corrections in several steps. After the adjustment, use a new, red plug (1 280 508 012).

yes

Trouble-shooting program for the customer complaint

"Rough idle, incorrect idle speed"

has been completed.

Has the defect been eliminated?

no

Further possible defects:

- Customer complaint incorrectly identified (see Coordinates B3...B8). If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart" (Coordinates B3/B4).
- Engine is not O.K. mechanically (compression, valve setting, valve timing, camshaft wear).



1=Throttle valve lever
2=Idle-speed-adjusting screw

1=Air-flow sensor
2=CO-adjusting screw



G23

Rough idle

Peugeot 505 Ti-Turbo



G24

Rough idle

Peugeot 505 Ti-Turbo



POOR THROTTLE TAKE-UP

Trouble-shooting program according to customer complaint

How to use this program

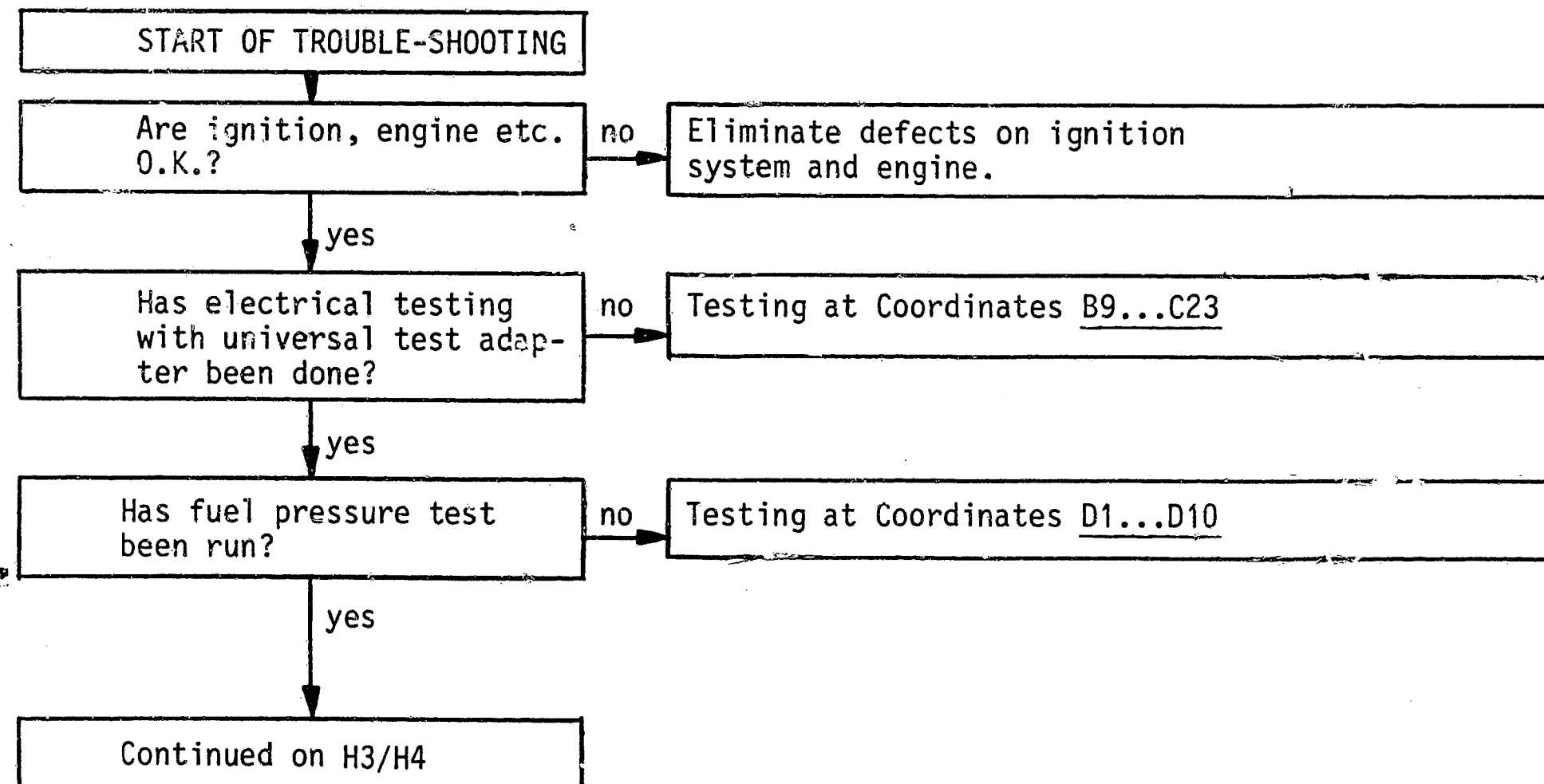
Testing is organized into 3 columns:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the components tests and adjustments.
- The column at the right shows the figures and the explanation of the items in those figures that go with the text.

If its is possible to answer the questions with "yes" even without a test, proceed to the question next following.

On the other hand, if the answer to the question is "no", and a defect is suspected, you must shift to the series of boxes in the center and perform the tests indicated there.

After completion of the test, the trouble-shooting is continued at that point at which the shift was made.



H1

Poor throttle take-up
Peugeot 505 Ti-Turbo



H2

Poor throttle take-up
Peugeot 505 Ti-Turbo



Poor throttle take-up (continued)

yes

Is the throttle valve closed?

- Does the throttle valve lever strike against the stop screw?
- Is the accelerator cable free of stress?
- Is the accelerator cable free of crimping?

no

• Checking:

Determine whether or not the throttle valve can be closed even further, causing the engine speed to drop.

• Adjustment of the throttle valve:

The lever on the throttle valve must strike against the stop screw shortly before jamming. Secure the stop screw in place with a lock nut.

- If the accelerator cable is crimped, take it out and replace it.

yes

Has the throttle valve switch been correctly set?

- Does the idle contact close?
- Does the microswitch click audibly?

no

• Adjustment of the throttle valve switch:

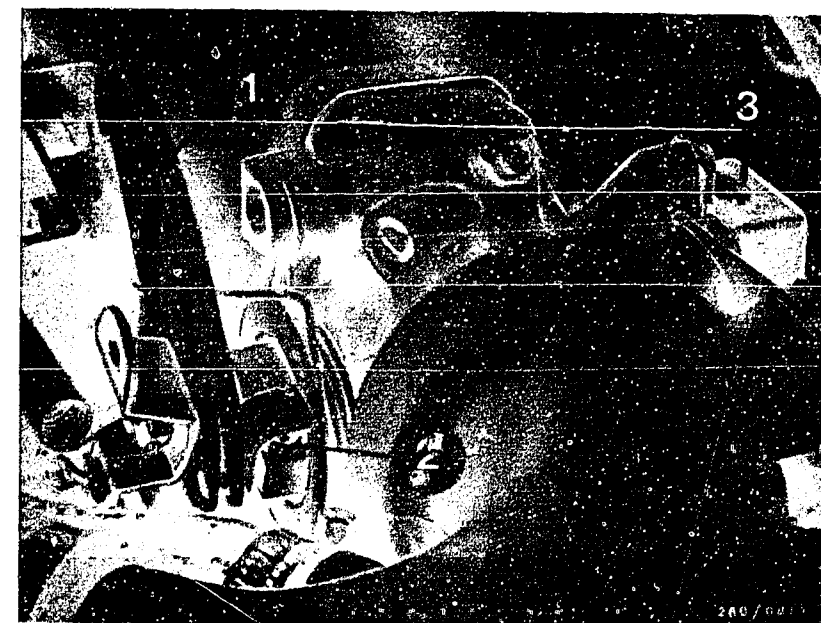
Release the fastening screws on the throttle valve switch somewhat. Connect an ohmmeter to the throttle valve switch between Term. 2 and Term. 18. Turn the throttle valve switch to the right until the idle contact closes. (Microswitch clicks audibly). Reading: 0 Ω

• Checking the setting:

Pull on the accelerator cable somewhat. The idle contact opens. (Microswitch clicks audibly). Reading $\infty\Omega$.

yes

Continued on H5/H6



1=Throttle valve lever
2=Throttle valve stop screw
3=Throttle valve switch

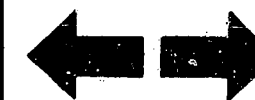
H3

Poor throttle take-up
Peugeot 505 Ti-Turbo

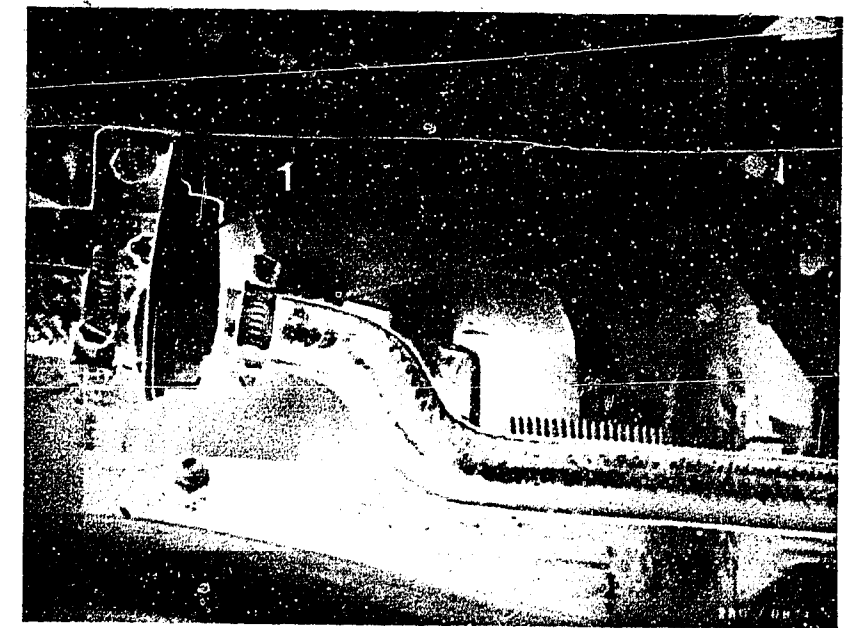
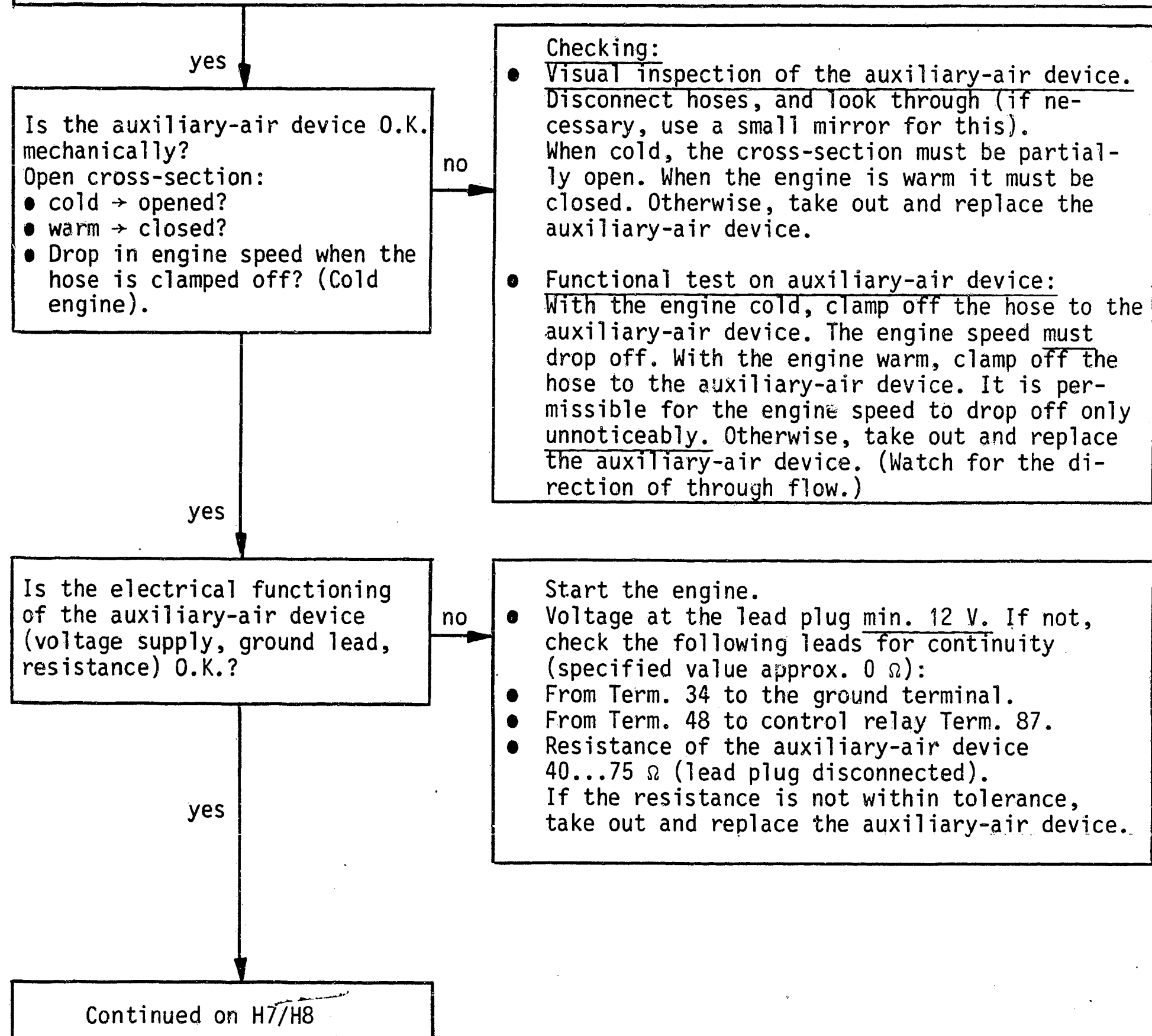


H4

Poor throttle take-up
Peugeot 505 Ti-Turbo



Poor throttle take-up (continued)



1=Auxiliary-air device

H5

Poor throttle take-up
Peugeot 505 Ti-Turbo



H6

Poor throttle take-up
Peugeot 505 Ti-Turbo



Poor throttle take-up (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does air-flow sensor flap move freely?
- Does air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerances?

Between Term. 8 and Term. 9:

140...280 Ω

Between Term. 7 and Term. 6 (deflect the air-flow sensor flap):

80...1000 Ω

no

Checking:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap manually. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must close again down to the stop by itself. The air-flow sensor flap must not stick during opening. Watch for scraping marks. If the air-flow sensor is severely fouled inside, clean it and rub it out with lint-free cloths. If there are scraping marks present, take out and replace the air-flow sensor.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specifications: 140...280 Ω
Connect the ohmmeter to Term. 7 and Term. 6 of the air-flow sensor, and deflect the air-flow sensor flap.
Test specification: 80...1000 Ω

N. B.! After completion of the test, the air-flow sensor must be screwed back on to the air filter housing.

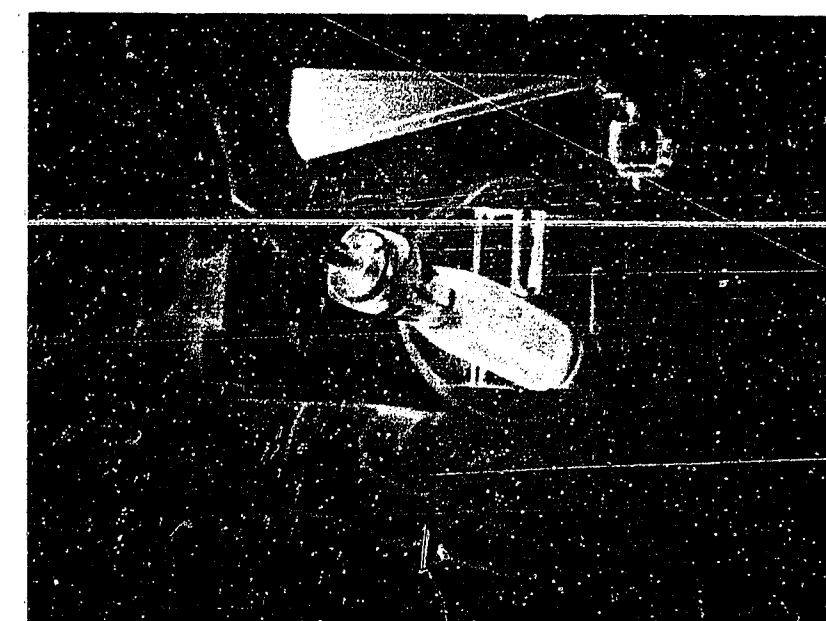
yes

Continued on H9/H10



1=Air-flow sensor
2=CO-adjusting screw

Press on the sensor flap in the air-flow sensor



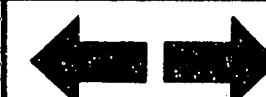
H7

Poor throttle take-up
Peugeot 505 Ti-Turbo



H8

Poor throttle take-up
Peugeot 505 Ti-Turbo



Poor throttle take-up (continued)

yes

Is the air-flow sensor - potentiometer O.K.?

- Is the potentiometer - wiper path O.K.?
- Is the stroke signal free of defect?

no

Potentiometer test: (Noise test)

- Unscrew the air-flow sensor from the air filter housing and release the hose clip. Set the motortester at the special input and using the special cable, connect to the air-flow sensor Term. 7 (red clip) and Term. 6 (black clip).

- Prepare adapter lead:

User-fabrication: Two leads approx. 1 m long with cross-section approx. 1.0 mm² and a 10A fuse. Two measuring prods are fastened on the one side. Remove insulation from approx. 2 cm on the other side and clamp the terminals of the special input connecting lead on there.

Caution!

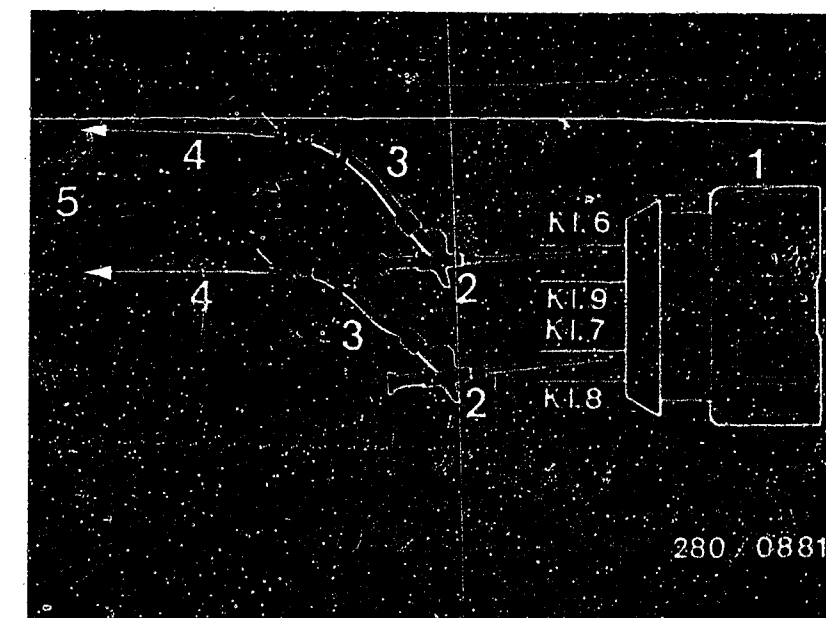
Insulate the bare connection points on the adapter lead (danger of short-circuit). Measure carefully into the connection plug of the air-flow sensor. Do not bend any spring blades out of shape. Set the control lever for picture adjustment on the motortester at the stop on the left (calibrated setting).

- Switch on the ignition. (Voltage supply through the control unit).

yes

Continued on H13/H14

Continued on H11/H12



- 1=Air-flow sensor-connection plug
- 2=Terminal test prod
- 3=Adapter lead (user-fabricated)
- 4=Special input - connection lead
- 5=Motortester - special input

H9

Poor throttle take-up
Peugeot 505 Ti-Turbo



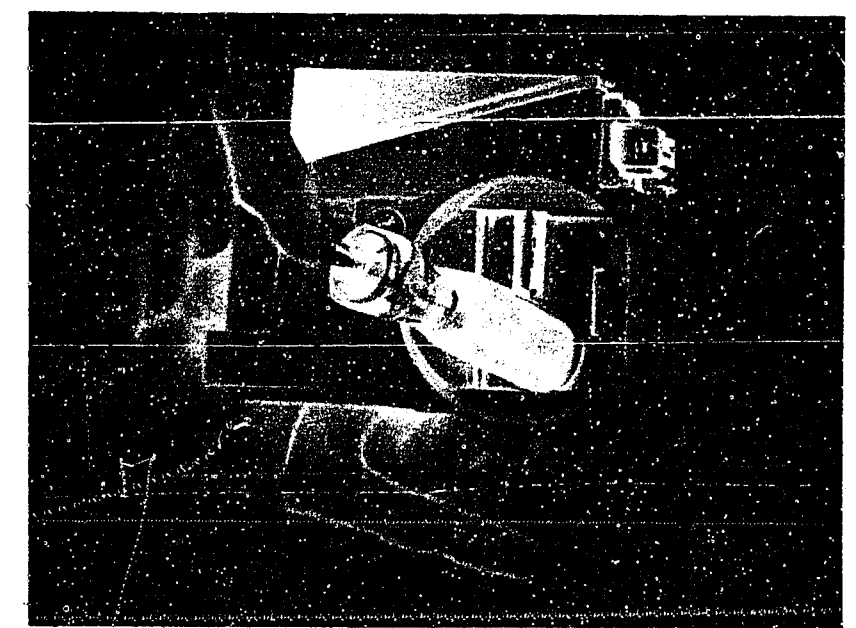
H10

Poor throttle take-up
Peugeot 505 Ti-Turbo



Poor throttle take-up (continued)

- Deflect the sensor flap of the air-flow sensor several times suddenly. If the air-flow sensor is good, a stroke signal without dips must appear on the oscilloscope. If the air-flow sensor is defective, a noise signal similar to the illustration at the right appears. Take out and replace the air-flow sensor. Disconnect the adapter lead after the test and put the rubber grommet back on correctly. Mount the air-flow sensor in place. Put on all hoses and tighten them (no leaks).

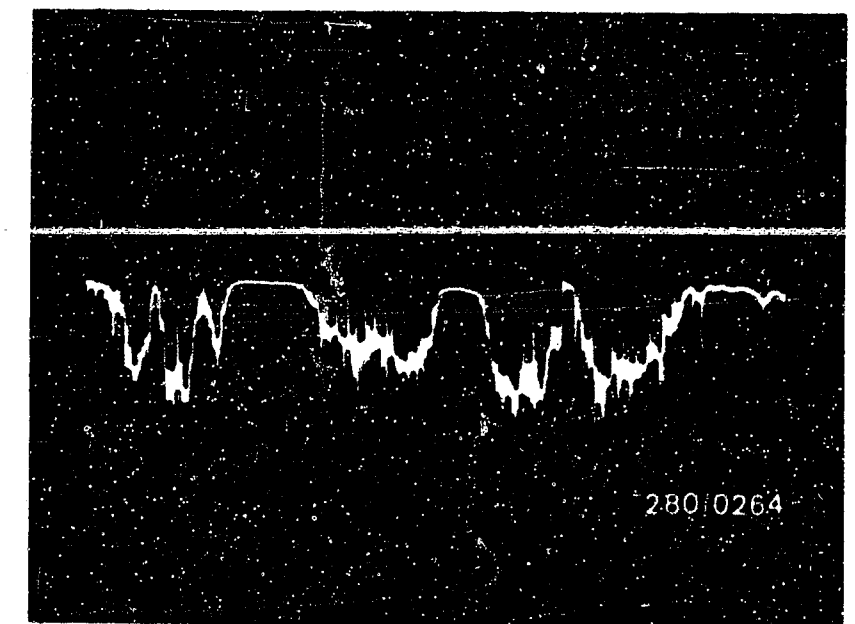


Press on the sensor flap in the air-flow sensor.

yes

Continued on H13/H14

Noise signal from a defective air-flow sensor



H11

Poor throttle take-up
Peugeot 505 Ti-Turbo



H12

Poor throttle take-up
Peugeot 505 Ti-Turbo



Poor throttle take-up (continued)

yes

Are all hose lines put on correctly, not crimped or damaged?

Visual inspection.

- Has air intake system been checked for leaks at 0.3 bar overpressure?

no

- Check if the hoses for the air intake system and the fuel line system are put on correctly, and that they are not crimped or damaged. If need be, take out and replace hoses. Eliminate leaks by using new gaskets or by tightening the connecting screws.

- Testing for leaks:
Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Remove the hose after the auxiliary-air device and using a compressed air gun, blow air (0.3 bar overpressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve completely. Brush or spray soapy water on all junction points. Leaks can also occur at the following points on the engine: oil dip-stick not stuck in firmly, defective cover seal on the oil filling fixture, etc. Bubbling or foaming indicates leaks.

yes

Continued on H15/H16



- 1=Charge-air cooler
- 2=Throttle valve assembly
- 3=Auxiliary-air device
- 4=Intake manifold
- 5=Throttle valve switch

H13

Poor throttle take-up
Peugeot 505 Ti-Turbo



H14

Poor throttle take-up
Peugeot 505 Ti-Turbo



Poor throttle take-up (continued)

yes

Have idle speed and CO been correctly adjusted?

no

- Idle-speed and CO adjustment
Exhaust-gas adjustment with exhaust-gas analyzer with engine at normal op. temp. (approx. +80°C) and at idle speed.
On vehicles of Sweden and Switzerland version render EGR system inoperative for the idle adjustment.

- Idle speed 850...950 min⁻¹

- CO-level 0.5...1.5 vol. %

For all vehicles:

- If the CO-component is too high, adjust the CO-adjusting screw in the air-flow sensor one half turn counterclockwise. (Socket hex screw, AF = 5 mm). Re-check the idle speed and the CO-level. If need be, make corrections in several steps. After the adjustment, use a new, red plug (1 280 508 012).

yes

Idle speed cannot be adjusted

yes

Trouble-shooting program for the customer complaint

"Poor throttle take-up"

has been completed.

Has the defect been eliminated?

no

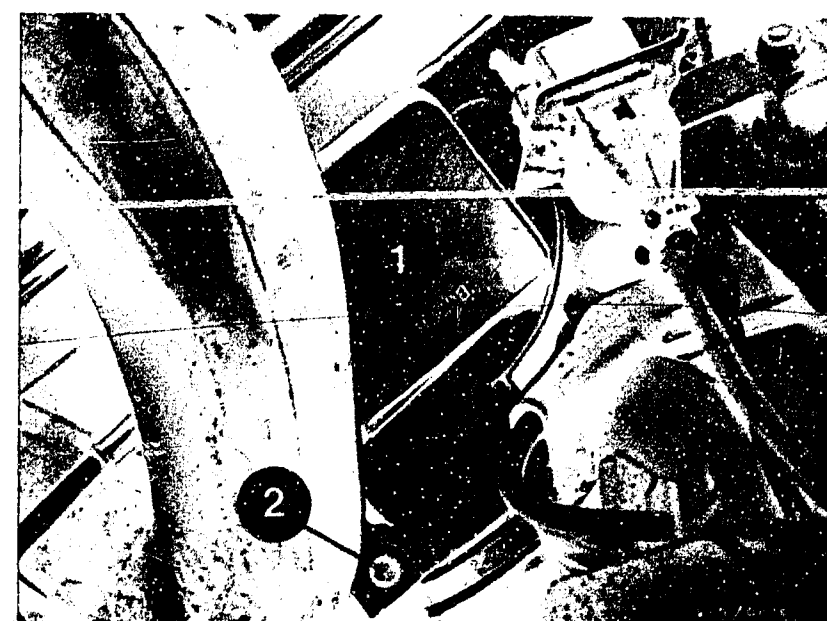
Further possible defects:

- Customer complaint incorrectly identified (see Coordinates B3...B8). If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart" (Coordinates B3/B4).
- Engine is not O.K. mechanically (compression, valve setting, valve timing, camshaft wear).



1=Throttle valve lever
2=Idle-speed-adjusting screw

1=Air-flow sensor
2=CO-adjusting screw



H15

Poor throttle take-up
Peugeot 505 Ti-Turbo



H16

Poor throttle take-up
Peugeot 505 Ti-Turbo



ENGINE MISSING IN ALL DRIVING CONDITIONS

Trouble-shooting program according to customer complaint

How to use this program

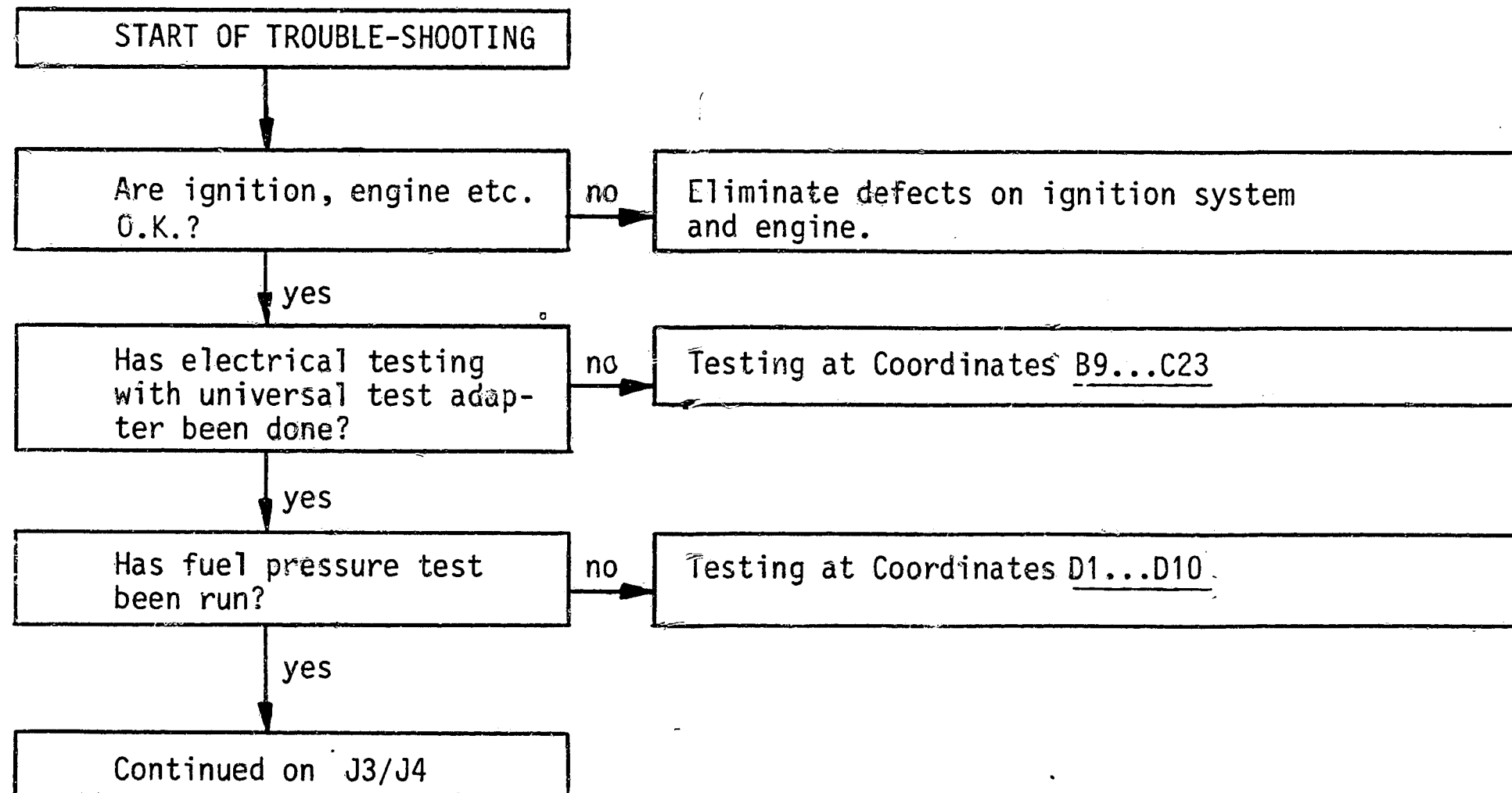
Testing is organized into 3 columns:

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- The column at the right shows the figures and the explanation of the items in those figures that go with the text.

If it is possible to answer the questions with "yes" even without a test , proceed to the question next following.

On the other hand, if the answer to the question is "no", and a defect is suspected, you must shift to the series of boxes in the center and perform the tests indicated there.

After completion of the test, the trouble-shooting is continued at that point at which the shift was made.



J1

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



J2

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing in all driving conditions (continued)

yes

Are alternator and regulator O.K.?

- No engine missing due to voltage peaks?

no

- With the engine shut off, disconnect the plug from the alternator. Start the engine. If the missing is eliminated, check the alternator and the regulator. Voltage peaks can be seen on the ignition oscilloscope.

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does air-flow sensor flap move freely?
- Does air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerances?

Between Term. 8 and Term. 9:

140...280 Ω

Between Term. 7 and Term. 6 (deflect the air-flow sensor flap):

80...1000 Ω

no

Checking:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap manually. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must close again down to the stop by itself. The air-flow sensor flap must not stick during opening. Watch for scraping marks. If the air-flow sensor is severely fouled inside, clean it and rub it out with lint-free cloths. If there are scraping marks present, take out and replace the air-flow sensor.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specifications: 140...280 Ω
Connect the ohmmeter to Term. 7 and Term. 6 of the air-flow sensor, and deflect the air-flow sensor flap.
Test specifications: 80...1000 Ω

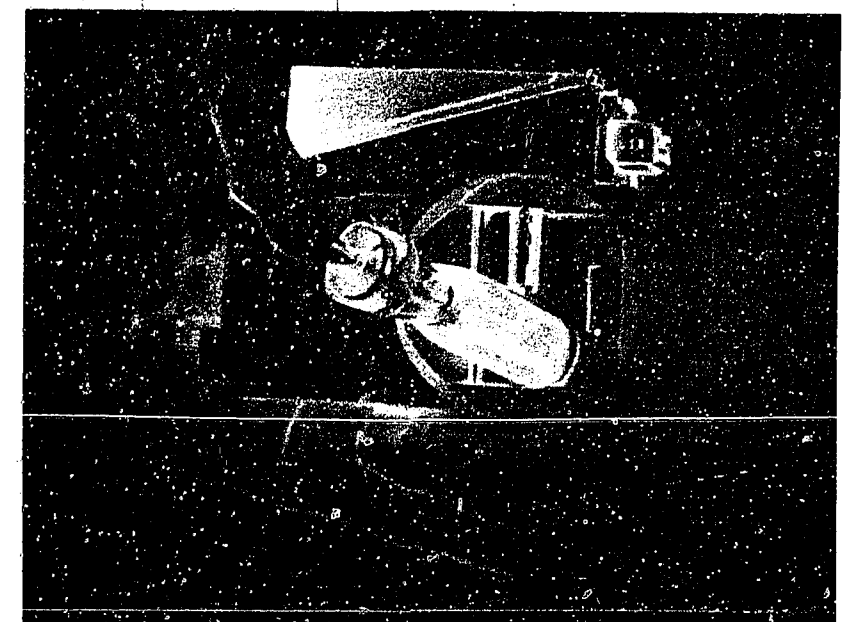
N. B.! After completion of the test, the air-flow sensor must be screwed back on to the air filter housing.

Continued on J5/J6



1=Air-flow sensor
2=C0-Adjusting screw

Press on the sensor flap in the air-flow sensor.



J3

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



J4

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing in all driving conditions (continued)

yes

Is the air-flow sensor -
potentiometer O.K.?

- Is the potentiometer -
wiper path O.K.?
- Is the stroke signal free
of defect?

no

Potentiometer test: (Noise test)

- Unscrew the air-flow sensor from the air filter housing and release the hose clip. Set the motortester at the special input and using the special cable, connect to the air-flow sensor Term. 7 (red clip) and Term. 6 (black clip).
- Prepare adapter lead:
User-fabrication: Two leads approx. 1 m long with cross-section approx. 1.0 mm² and a 10 A fuse. Two measuring prods are fastened on the one side. Remove insulation from approx. 2 cm on the other side and clamp the terminals of the special input connecting lead on there.

Caution!

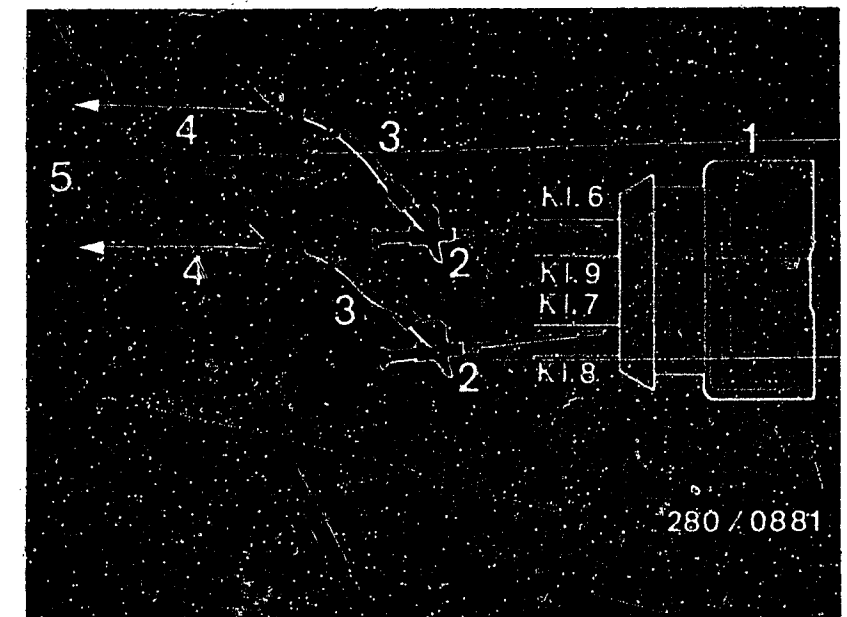
Insulate the bare connection points on the adapter lead (danger of short-circuit). Measure carefully into the connection plug of the air-flow sensor. Do not bend any spring blades out of shape. Set the control lever for picture adjustment on the motortester at the stop on the left (calibrated setting).

- Switch on the ignition.
(Voltage supply through the control unit).

yes

Continued on J9/J10

Continued on J7/J8



- 1=Air-flow sensor-connection plug
- 2=Terminal test prod
- 3=Adapter lead (user-fabricated)
- 4=Special input - connection lead
- 5=Motortester - special input

J5

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



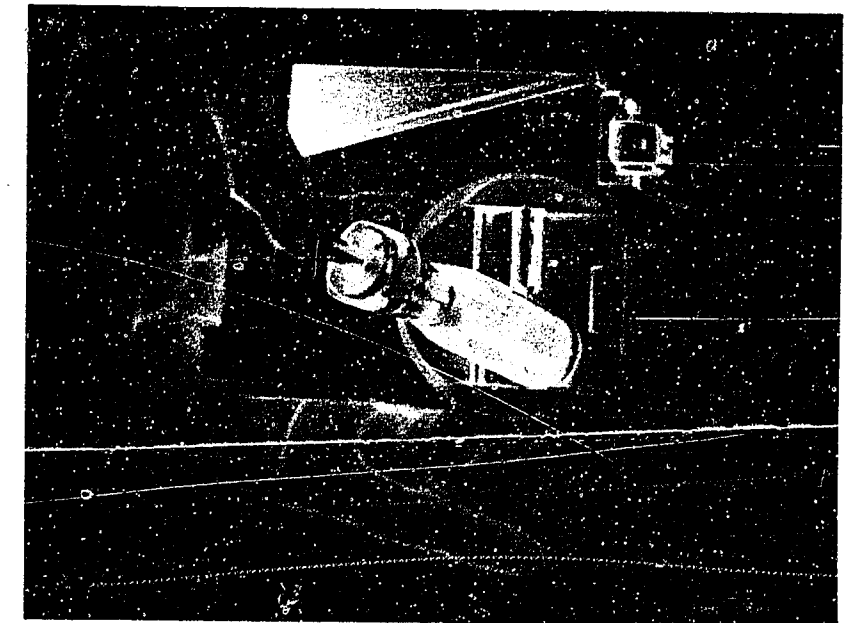
J6

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



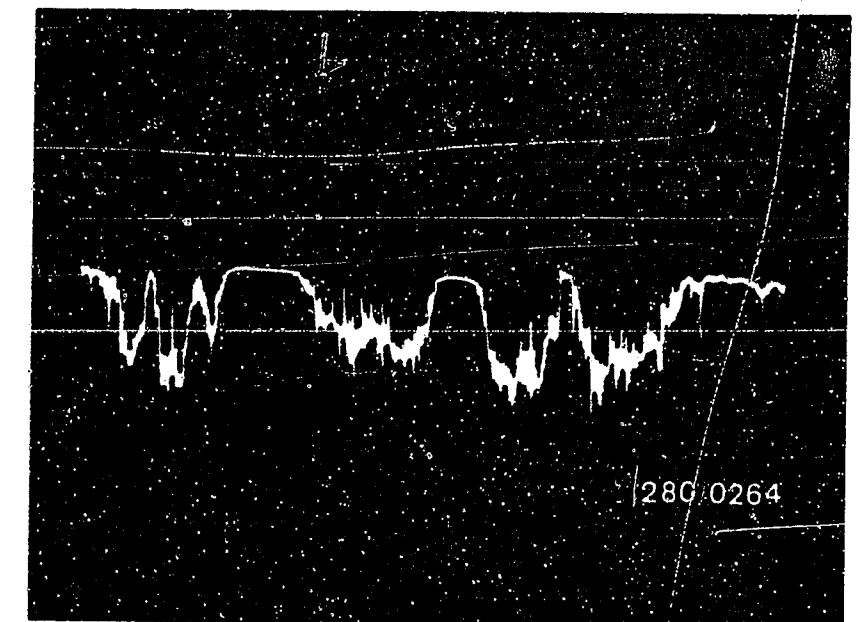
Engine missing in all driving conditions (continued)

- Deflect the sensor flap of the air-flow sensor several times suddenly. If the air-flow sensor is good, a stroke signal without dips must appear on the oscilloscope. If the air-flow sensor is defective, a noise signal similar to the illustration at the right appears. Take out and replace the air-flow sensor. Disconnect the adapter lead after the test and put the rubber grommet back on correctly. Mount the air-flow sensor in place. Put on all hoses and tighten them (no leaks).



Press on the sensor flap in the air-flow sensor.

Noise signal from a defective air-flow sensor



yes

Continued on J9/J10

J7

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



J8

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing in all driving conditions (continued)

yes

Is the fuel delivery of the electric fuel pump O.K.?

Test specification:
min. 750 cm³/30s

no

- Measure the fuel delivery:
For testing, release the return hose from the pressure regulator and connect a separate hose line. Direct the end of the hose into a 5 l container with a measuring scale. Disconnect the control relay. Insert the jumper into the connection socket between Term. 87b and Term. 30. The electric fuel pump must run.
Test specification:
min.: 750 cm³/30 s

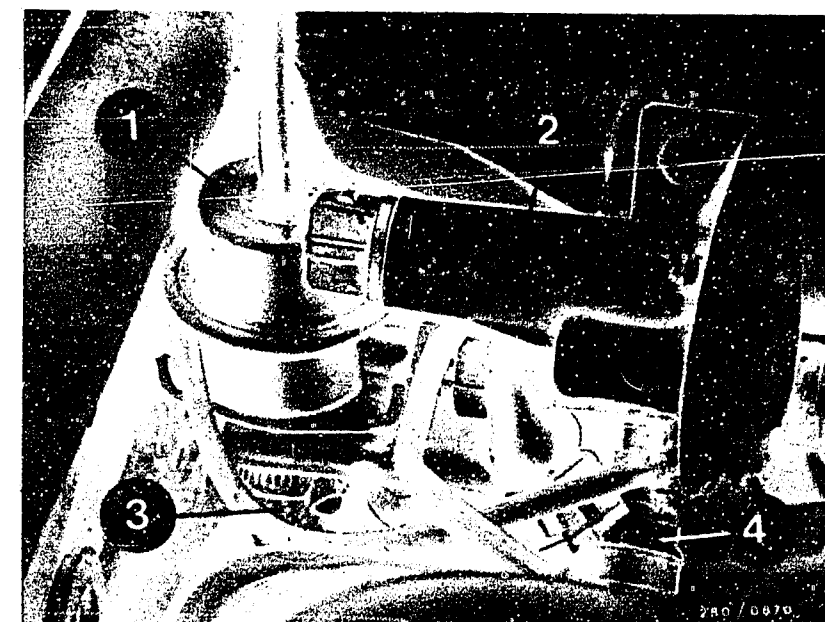
N. B.!

Be absolutely certain to remove the jumper after completion of the test!

Corrective action if test specification is not attained:

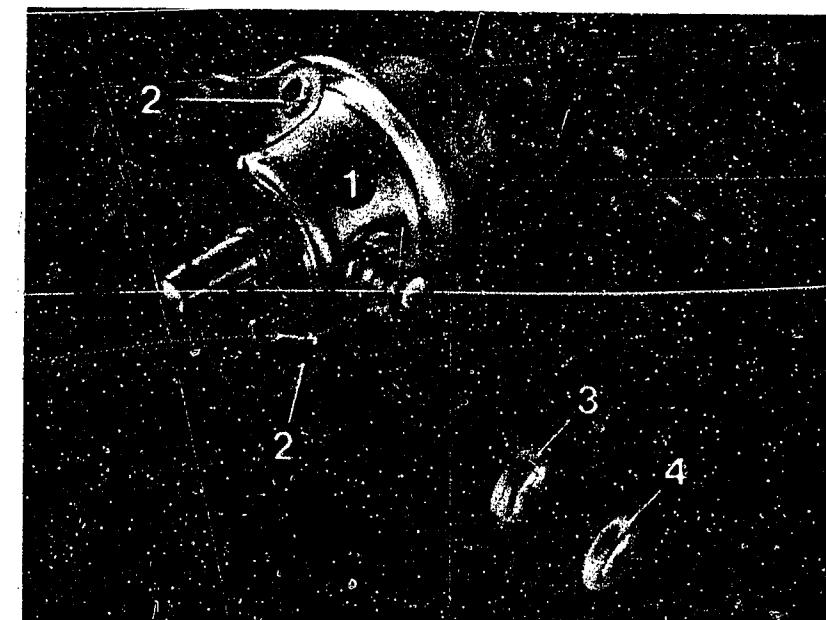
- Fuel filter is clogged: take it out and replace it.
- Is the voltage at the connection terminals for the electric fuel pump with the engine running: min. 12 V ? If not, clean the contacts, eliminate any poor ground connection, take out and replace the leads.
- The in-tank pre-supply pump is not working.
- Delivery: min. 850 cm³/30s
The fuel pressure regulator is defective: take it out and replace it (using set of parts 1 287 010 704).
- If the fuel delivery is too small, take out and replace the electric fuel pump.

Continued on J11/J12



1=Pressure regulator
2=Auxiliary-air device
3=Return hose
4=Electric fuel-injection valve

1=Pressure regulator
2=Fastening holes
3=Flat ring } Set of parts
4=O-ring } 1 287 010 704



J9

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo

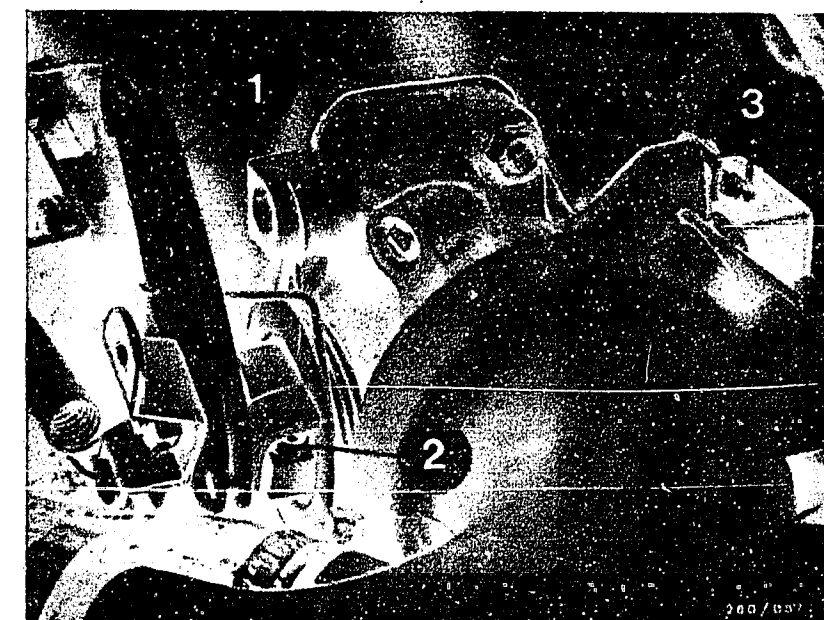
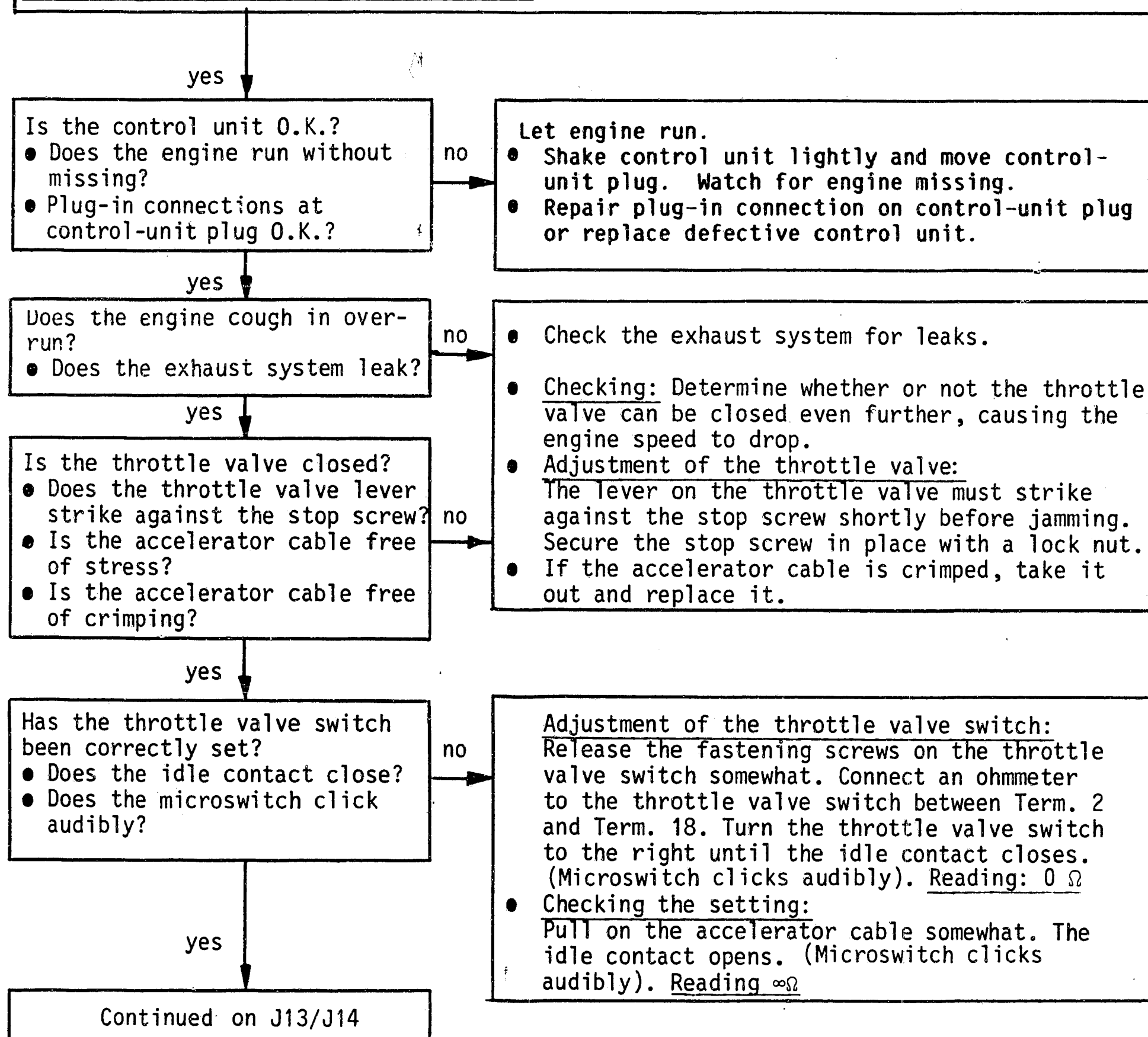


J10

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing in all driving conditions (continued)



1=Throttle valve lever
2=Throttle valve stop screw
3=Throttle valve switch

J11

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



J12

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing in all driving conditions (continued)

yes

Does engine cough in overrun?
Is the overrun cutoff O.K.?

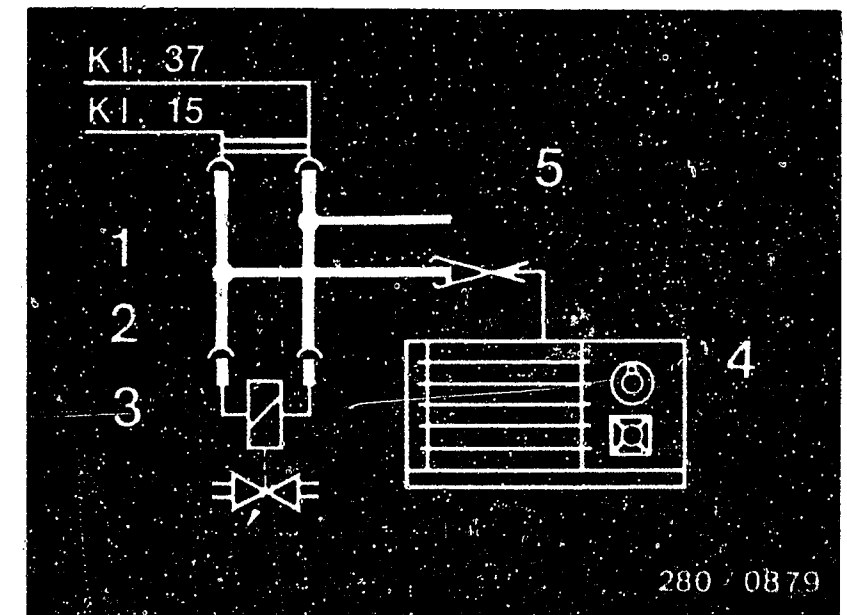
- Is the control unit working properly?
- Is the reset speed O.K.?
cold: 2000 min⁻¹
warm: 1100 min⁻¹

no

- Checking the operation of the overrun cutoff:
Connect the test lead as follows:
Connect the 2-pole plug connections for the test lead between an electric fuel-injection valve and its connecting lead.
Of the two other connecting terminals for the test lead, join only one to the special input on the motortester. (Do not ground the free connection!)
 - If connected correctly, the fuel-injection pulse shown at the right for a current-control output stage appears on the oscilloscope at more than idle speed.
Watch the oscilloscope!
 - Slowly run the engine up to 3000 min⁻¹. Fuel-injection pulses must be visible on the oscilloscope. Take your foot from the accelerator (idle setting). No fuel-injection pulses are present any longer.
 - Engine clearly at less than ambient temperature (+15°C...+30°C):
Fuel-injection pulses must be visible again starting from approx. 2000 min⁻¹.
 - Engine at normal operating temperature (approx. +80°C):
Fuel-injection pulses must reappear after approx. 1100 min⁻¹.
- If it is not functioning properly, take out and replace the control unit.

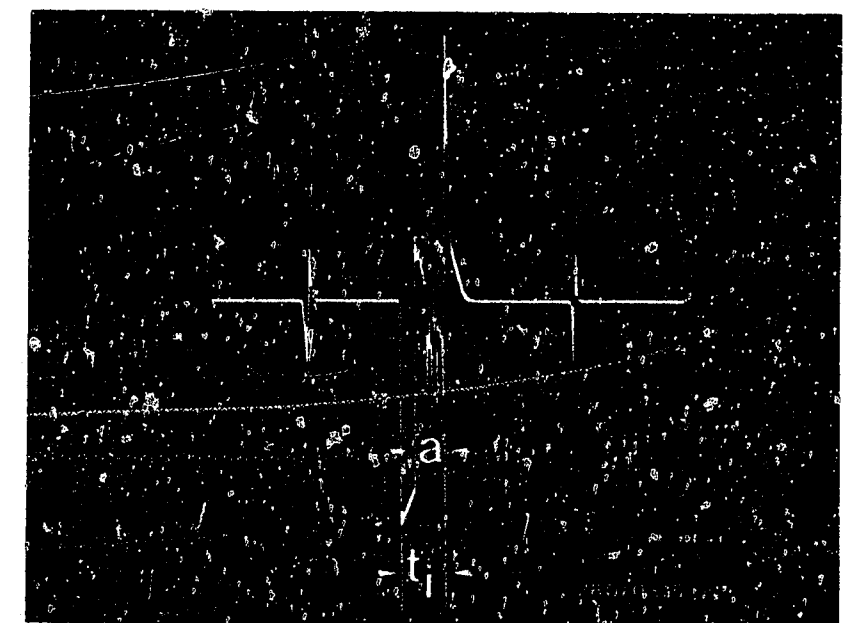
yes

Continued on J15/J16



- 1=Connection plug for valve lead
- 2=Test lead 1 684 463 093
- 3=Electric fuel-injection valve
- 4=Motortester
- 5=free connection

a=Pulse length (dependent on engine load)
t_i=Fuel-injection pulse



J13

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



J14

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing in all driving conditions (continued)

yes

Have idle speed and CO been correctly adjusted?

no

- Idle-speed and CO adjustment
Exhaust-gas adjustment with exhaust-gas analyzer with engine at normal op. temp. (approx. +80°C) and at idle speed.
On vehicles of Sweden and Switzerland version render EGR system inoperative for the idle adjustment.

- Idle speed 850...950 min⁻¹

- CO-level 0.5...1.5 vol. %

For all vehicles:

If the CO-component is too high, adjust the CO-adjusting screw in the air-flow sensor one half turn counterclockwise. (Socket hex screw, AF = 5 mm). Re-check the idle speed and the CO-level. If need be, make corrections in several steps. After the adjustment, use a new, red plug (1 280 508 012).

yes

Idle speed cannot be adjusted.

yes

Continued on J17/J18



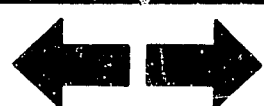
1=Throttle valve lever
2=Idle-speed-adjusting screw

1=Air-flow sensor
2=CO-adjusting screw



J15

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



J16

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing in all driving conditions (continued)

yes

Has the functioning of the electric fuel-injection valves been checked?

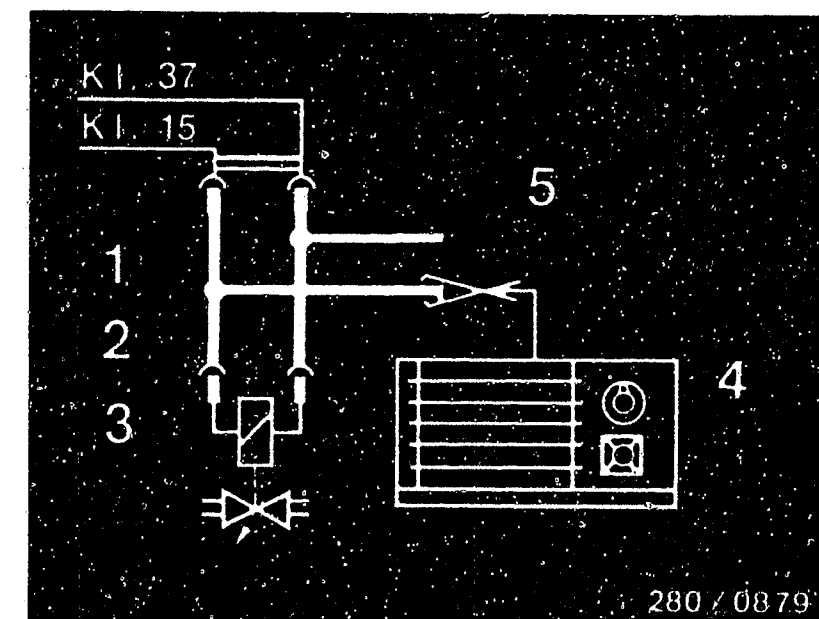
- Are the fuel-injection pulses free of interference or missing?
- Are the leads laid properly?
- Are the plug connections free of loose contacts?

no

- Connect the test lead as follows:
Connect the 2-pole plug connections for the test lead between the electric fuel-injection valve and its connecting lead.
Of the two other connecting terminals for the test lead, join only one to the special input on the motortester.
- **Caution!**
The free connection terminal must not come into contact with the vehicle body ground!
- If connected correctly, the fuel-injection pulse shown at the right for a current-control output stage appears on the oscilloscope at more than idle speed. Using the test lead, it is possible to test the fuel-pulses on the electric fuel-injection valves using an ignition oscilloscope while the engine is running. If the pattern shown at the right is not obtained, or if deviations (interference, missing, etc.) can be seen, check the other electric fuel-injection valves also.
- For interference: check how the leads were laid.
- For missing: eliminate loose contacts in leads or in the plug connections.

yes

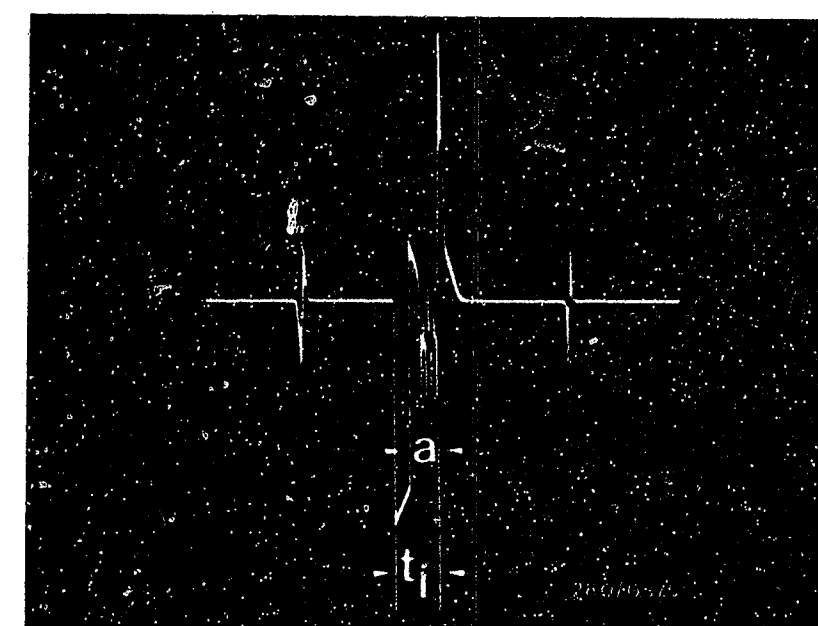
Continued on J19/J20



- 1=Connection plug for valve lead
- 2=Test lead 1 684 463 093
- 3=Electric fuel-injection valve
- 4=Motortester
- 5=free connection

a=Pulse length (dependent on engine load)

t_i =Fuel-injection pulse



J17

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



J18

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing missing in all driving conditions (continued)

yes

Are the electric fuel-injection valves O.K. mechanically?

- Does the engine speed drop off when individual fuel-injection valves are disconnected?
- Are the O-rings O.K.?
- Repair electric fuel-injection valves.

no

With the engine running, disconnect the electric fuel-injection valve plugs from the valves individually, one after the other, and plug them back on. If an electric fuel-injection valve is good, the engine speed must drop.

Caution!

If changing injection valves, install injection valve 0 280 150 200. If injection valves O.K. but O-rings defective, proceed as follows:

• **Instructions for repair**

Take out the fuel distribution pipe.

Disconnect electric lead.

Shove the holding brackets carefully out of the slot and pull the electric fuel-injection valve out of the fuel distribution pipe.

Caution!

Catch the fluid that runs out.

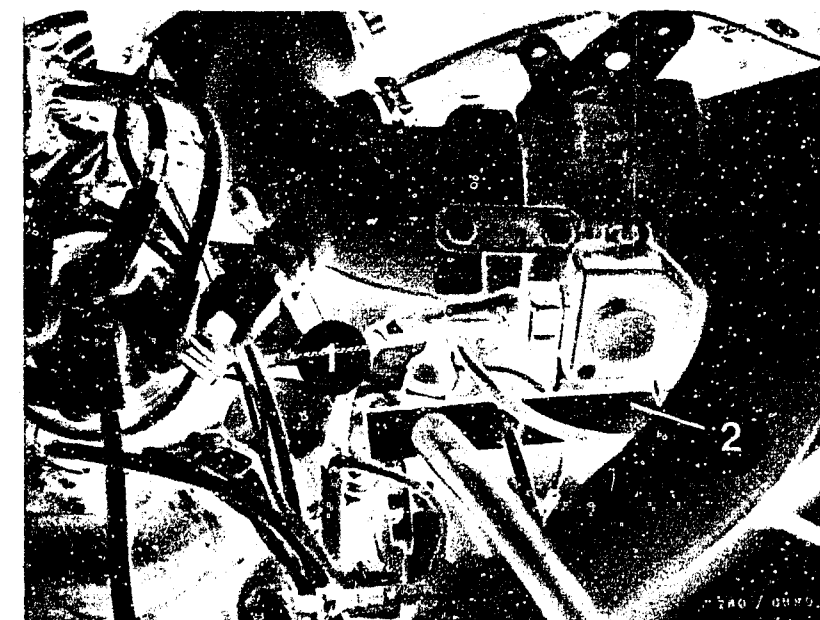
Do not allow it to drip on hot portions of the engine.

N. B.!

The protective sleeve must not be pried off.

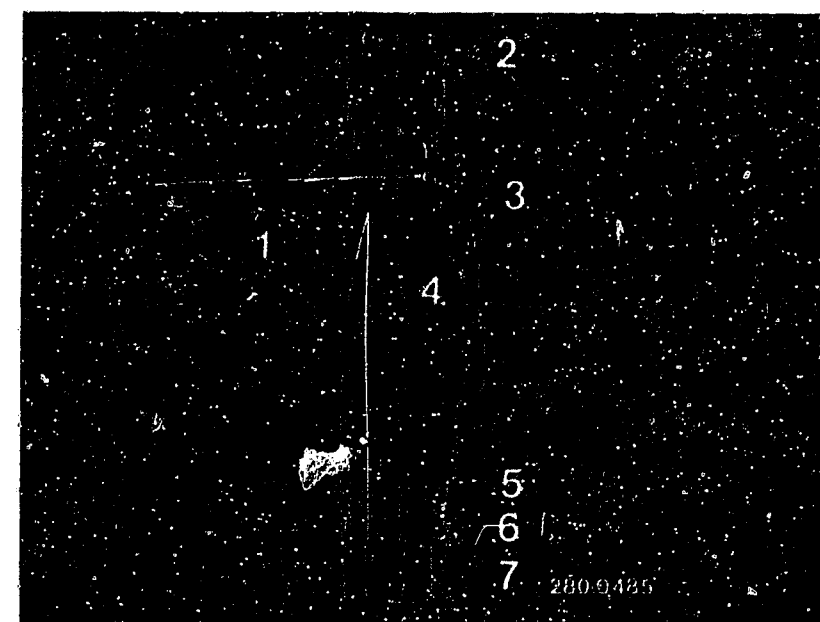
yes

Continued on J21/J22



1=Electric fuel-injection valve
2=Fuel distribution pipe

- 1=FD marking
2=Top O-ring
3=Part No.
4=Electric fuel-injection valve
5=Support disc
6=Bottom O-ring
7=Protective sleeve



J19

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo

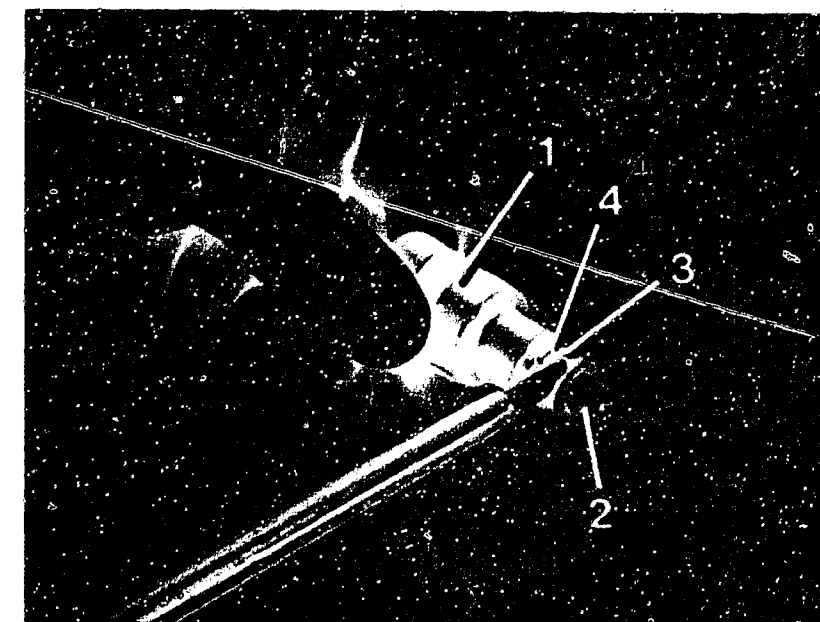
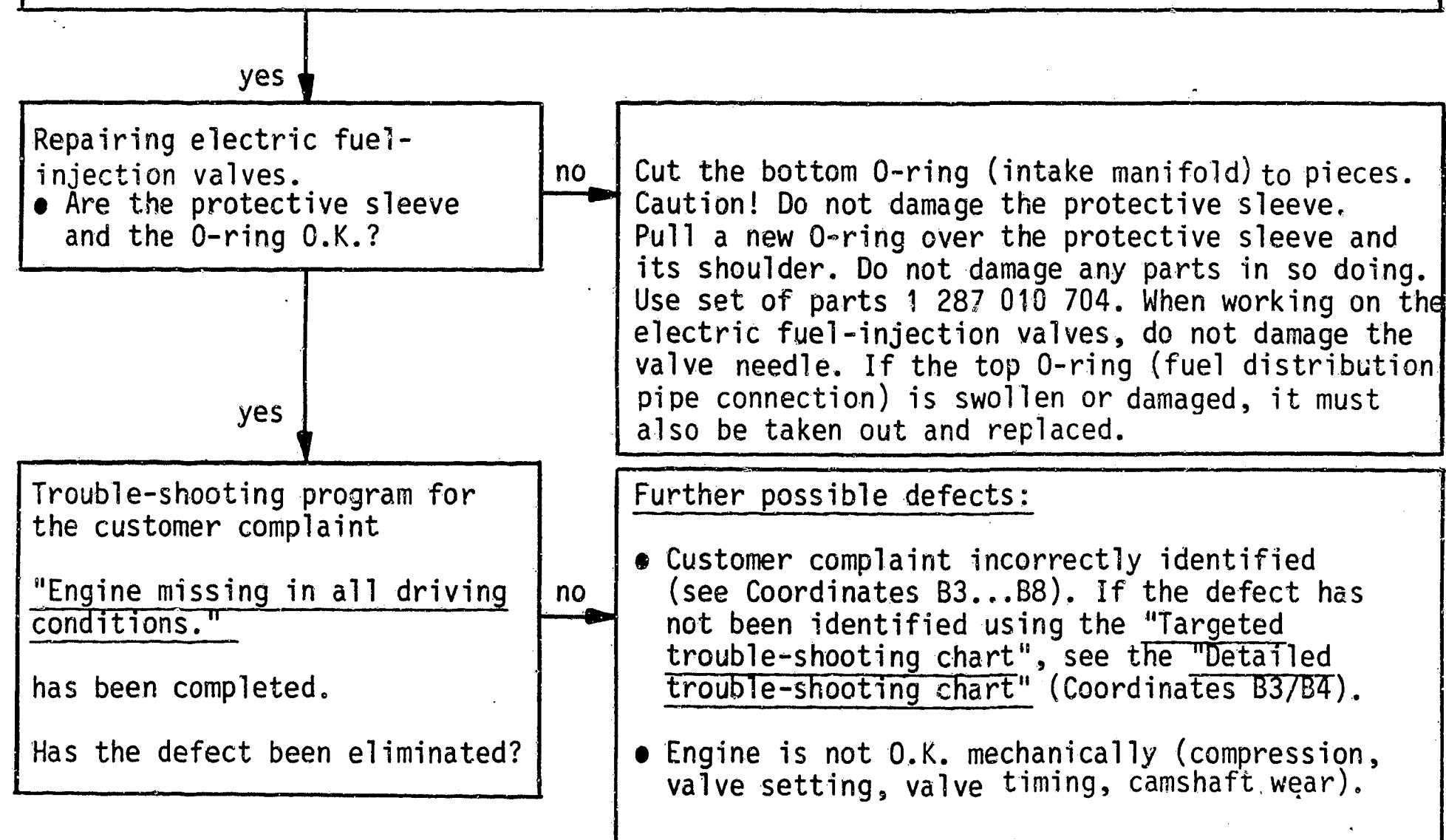


J20

Engine missing in all driving conditions
Peugeot 505 Ti-Turbo



Engine missing in all driving conditions (continued)



1=Electric fuel-injection valve
2=Protective sleeve
3=Bottom O-ring
4=Support disc



FUEL CONSUMPTION TOO HIGH

Trouble-shooting program according to customer complaint

How to use this program

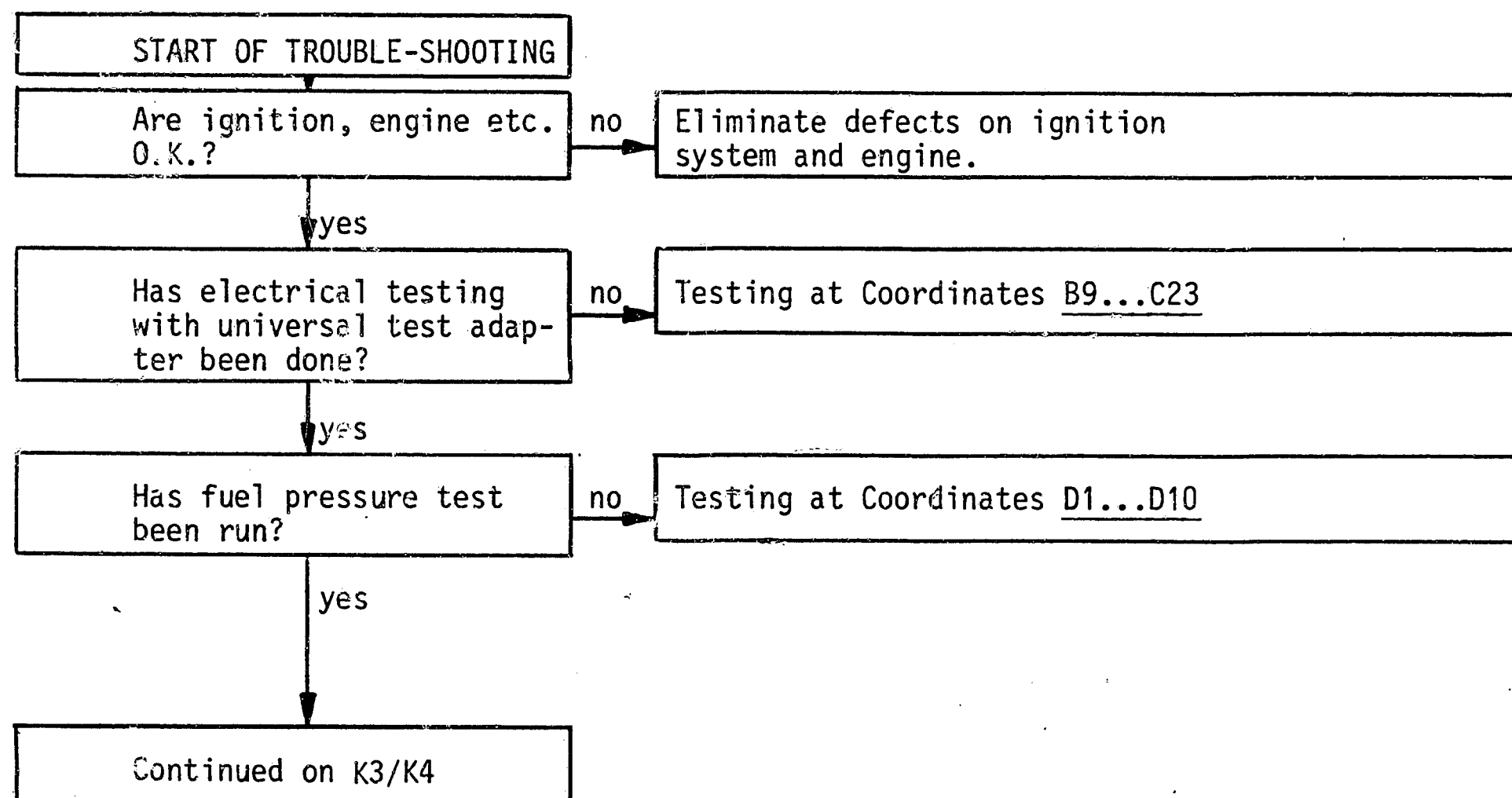
Testing is organized into 3 columns:

- The column at the left contains the questions for the tests being run.
- The column in the middle describes the component tests and adjustments.
- The column at the right shows the figures and the explanation of the items in those figures that go with the text.

If it is possible to answer the questions "yes" even without a test, proceed to the question next following.

On the other hand, if the answer to the question is "no", and a defect is suspected, you must shift to the series of boxes in the center and perform the tests indicated there.

After completion of the test, the trouble-shooting is continued at that point at which the shift was made.



K1

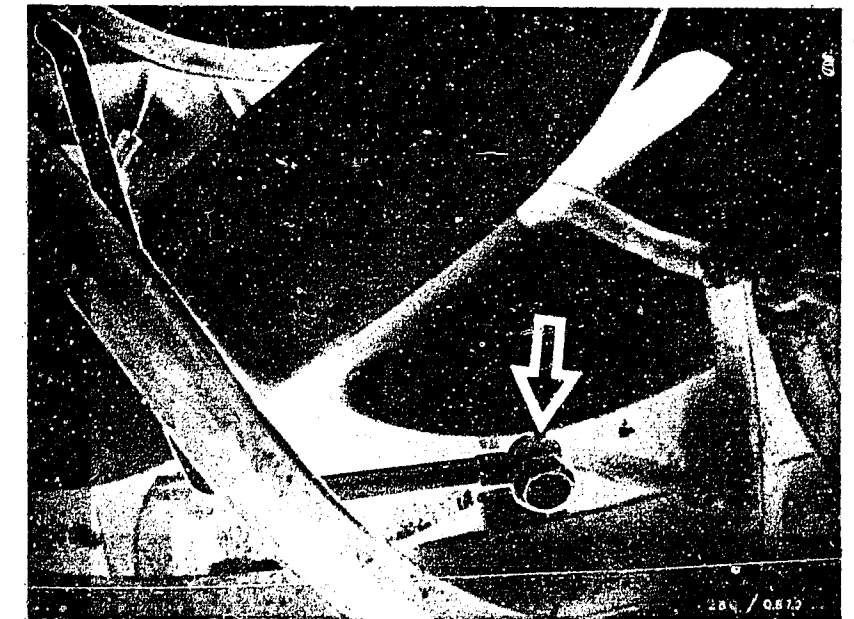
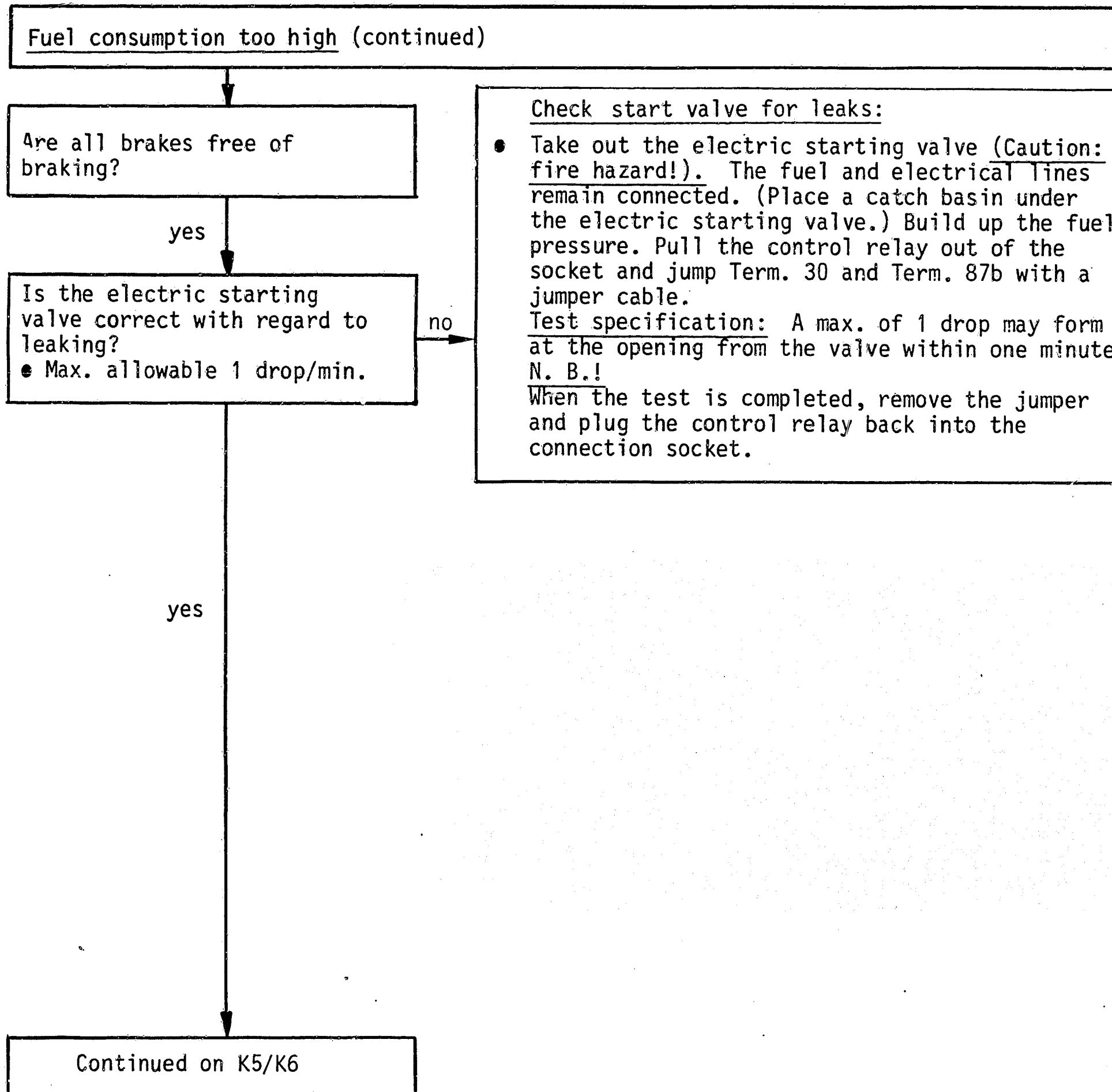
Fuel consumption too high
Peugeot 505 Ti-Turbo



K2

Fuel consumption too high
Peugeot 505 Ti-Turbo





Arrow=Electric starting valve

K3

Fuel consumption too high
Peugeot 505 Ti-Turbo



K4

Fuel consumption too high
Peugeot 505 Ti-Turbo



Fuel consumption too high (continued)

yes

Are the electric fuel-injection valves O.K. mechanically?

- Does the engine speed drop off when individual fuel-injection valves are disconnected?
- Are the O-rings O.K.?
- Repair electric fuel-injection valves.

no

With the engine running, disconnect the electric fuel-injection valve plugs from the valves individually, one after the other, and plug them back on. If an electric fuel-injection valve is good, the engine speed must drop.

N. B.!

When an electric fuel-injection valve is changed, electric fuel-injection valve 0 280 150 200 must be put in. If the electric fuel-injection valves are functioning well, but the O-rings are defective, proceed as follows:

Instructions for repair

Take out the fuel distribution pipe.

Disconnect electric lead.

Shove the holding brackets carefully out of the slot and pull the electric fuel-injection valve out of the fuel distribution pipe.

Caution!

Catch the fluid that runs out.

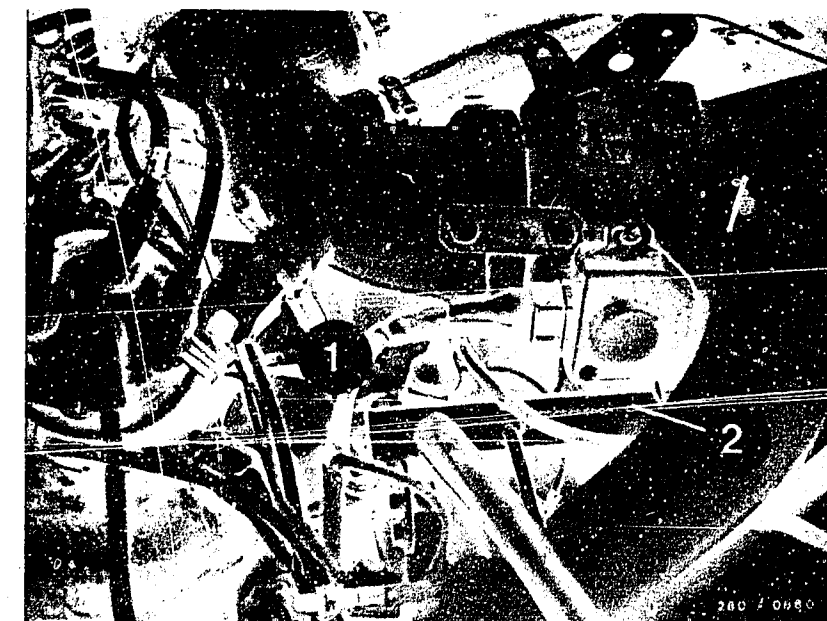
Do not allow it to drip on hot portions of the engine.

N. B.!

The protective sleeve must not be pried off.

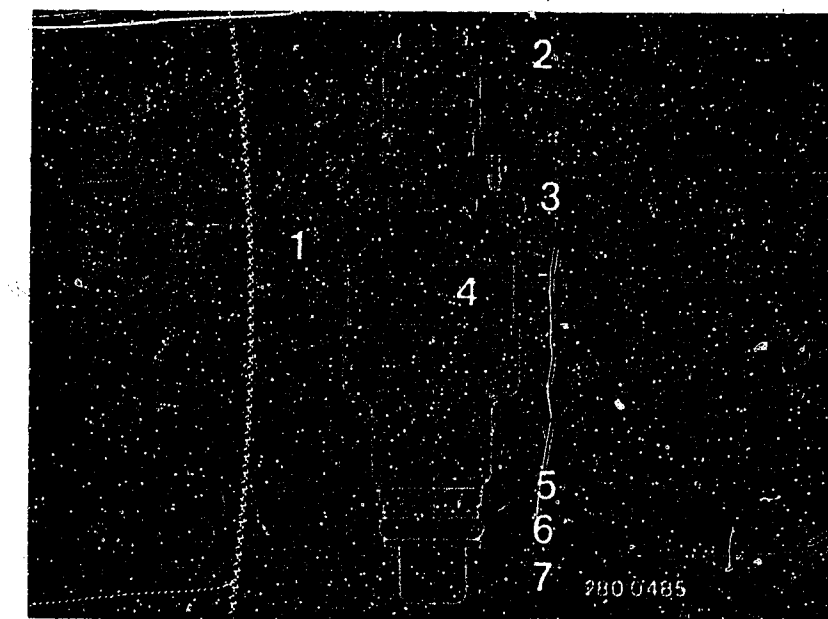
yes

Continued on K7/K8



1=Electric fuel-injection valve
2=Fuel distribution pipe

1=FD marking
2=Top O-ring.
3=Part No.
4=Electric fuel-injection valve
5=Support disc
6=Bottom O-ring
7=Protective sleeve



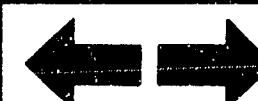
K5

Fuel consumption too high
Peugeot 505 Ti-Turbo



K6

Fuel consumption too high
Peugeot 505 Ti-Turbo



Fuel consumption too high (continued)

yes

Repairing electric fuel-injection valves.

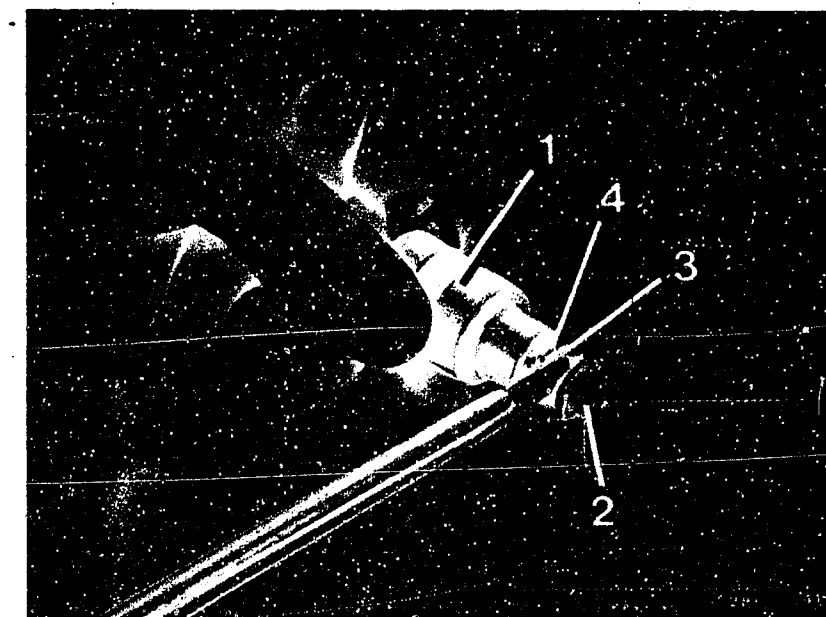
- Are the protective sleeve and the O-ring O.K.?

no

Cut the bottom O-ring (intake manifold) to pieces. Caution! Do not damage the protective sleeve. Pull a new O-ring over the protective sleeve and its shoulder. Do not damage any parts in so doing. Use set of parts 1 287 010 704. When working on the electric fuel-injection valves, do not damage the valve needle. If the top O-ring (fuel distribution pipe connection) is swollen or damaged, it must also be taken out and replaced.

yes

Continued on K9/K10



- 1=Electric fuel-injection valve
- 2=Protective sleeve
- 3=Bottom O-ring
- 4=Support disc

K7

Fuel consumption too high
Peugeot 505 Ti-Turbo



K8

Fuel consumption too high
Peugeot 505 Ti-Turbo



Fuel consumption too high (continued)

yes

Is the air-flow sensor O.K. mechanically and electrically?

- Does air-flow sensor flap move freely?
- Does air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerance?

Between Term. 8 and Term. 9:

140...280 Ω

Between Term. 7 and Term. 6 (deflect the air-flow sensor flap):

80...1000 Ω

yes

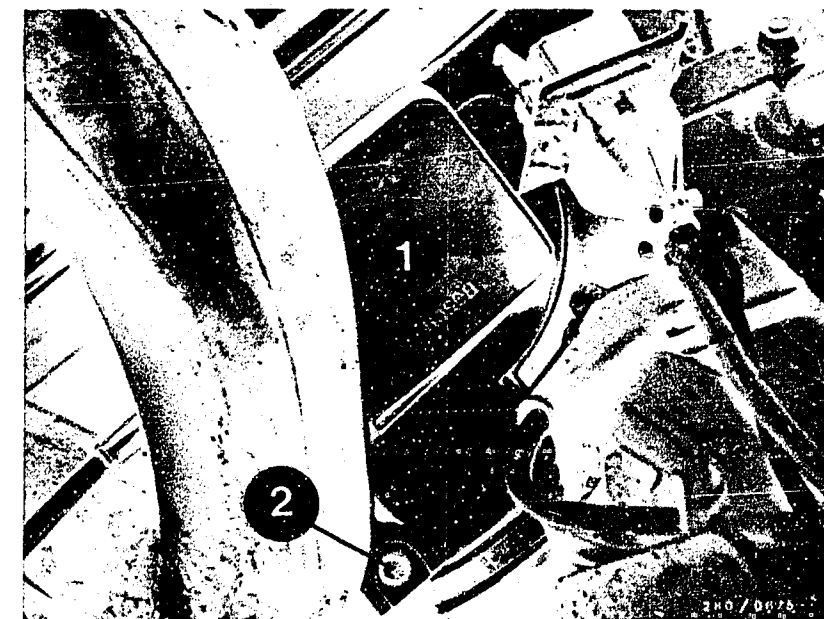
Continued on K11/K12

no

Checking:

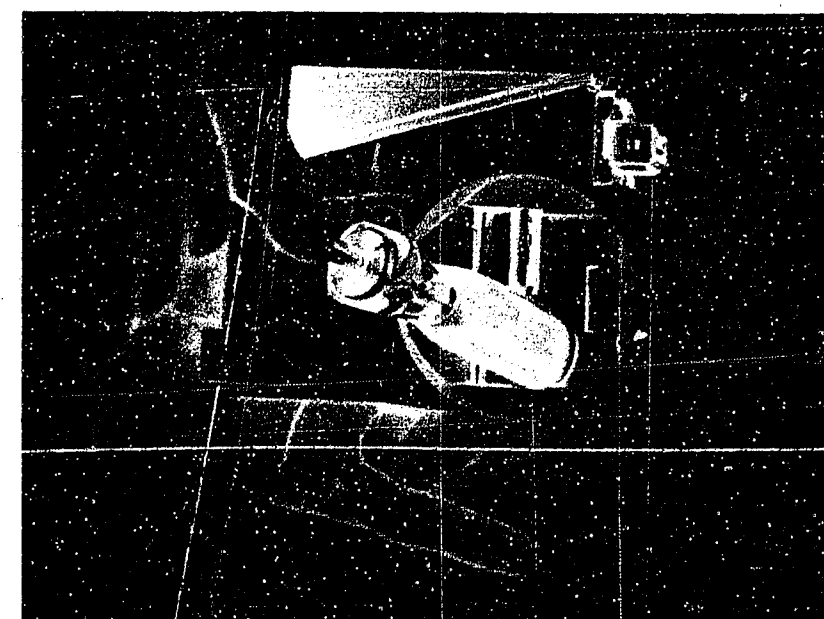
- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap manually. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must close again down to the stop by itself. The air-flow sensor flap must not stick during opening. Watch for scraping marks. If the air-flow sensor is severely fouled inside, clean it and rub it out with lint-free cloths. If there are scraping marks present, take out and replace the air-flow sensor.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specifications: 140...280 Ω
Connect the ohmmeter to Term. 7 and Term. 6 of the air-flow sensor, and deflect the air-flow sensor flap.
Test specifications: 80...1000 Ω

N. B.! After completion of the test, the air-flow sensor must be screwed back on to the air filter housing.



1=Air-flow sensor
2=CO-adjusting screw

Press on the sensor flap in the air-flow sensor.



K9

Fuel consumption too high

Peugeot 505 Ti-Turbo



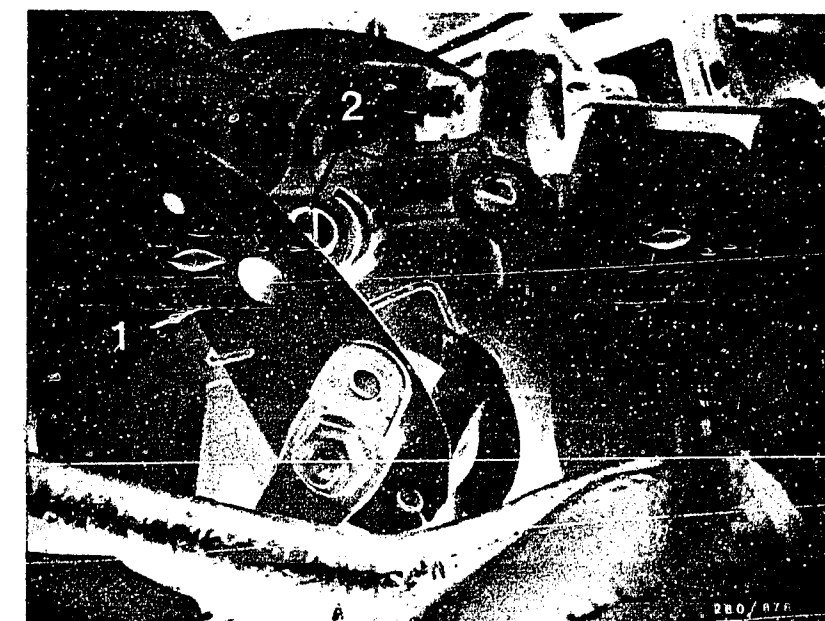
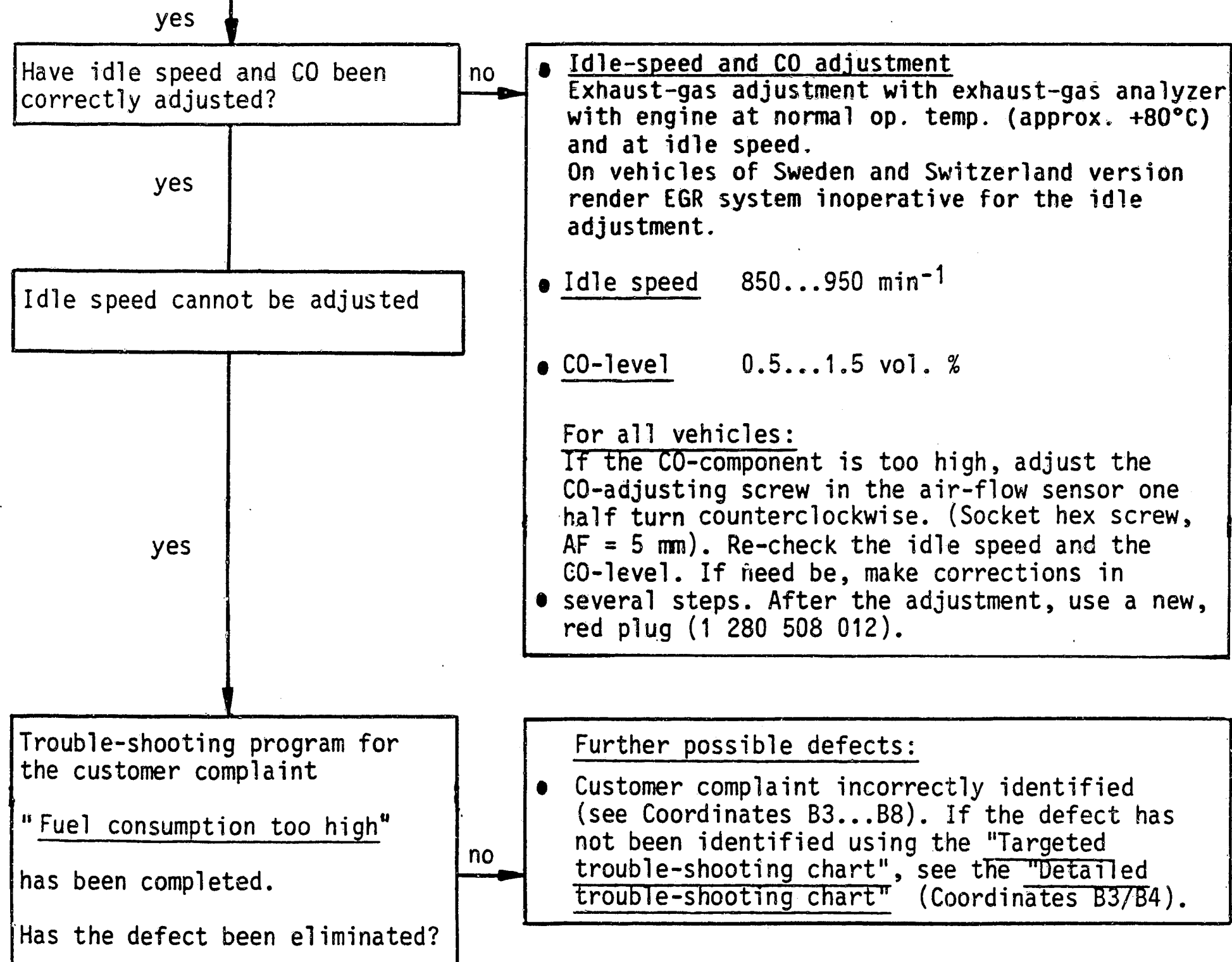
K10

Fuel consumption too high

Peugeot 505 Ti-Turbo



Fuel consumption too high (continued)



1=Throttle valve lever
2=Idle-speed-adjusting screw

1=Air-flow sensor
2=CO-adjusting screw



K11

Fuel consumption too high

Peugeot 505 Ti-Turbo



K12

Fuel consumption too high

Peugeot 505 Ti-Turbo



INSUFFICIENT MAX. POWER OUTPUT OR MAX. VELOCITY IS NOT ATTAINED

Trouble-shooting program according to customer complaint

How to use this program

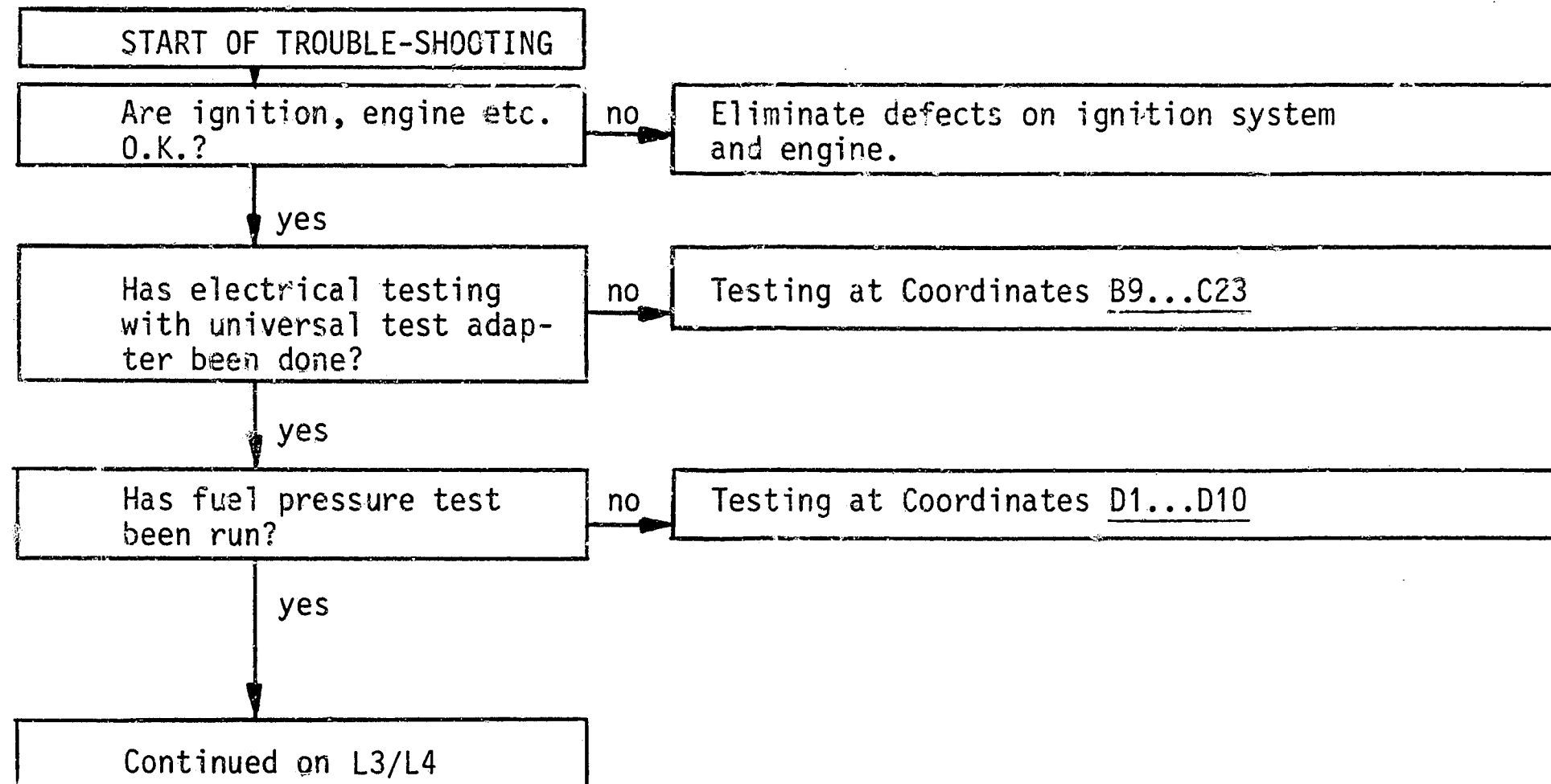
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- The column in the middle describes the component tests and adjustments.
- The column at the right shows the figures and the explanation of the items in those figures that go with the text.

If it is possible to answer the questions "yes" even without a test, proceed to the question next following.

On the other hand, if the answer to the question is "no", and a defect is suspected, you must shift to the series of boxes in the center and perform the tests indicated there.

After completion of the test, the trouble-shooting is continued at that point at which the shift was made.

**L1**

Insufficient max. power output
Peugeot 505 Ti-Turbo

**L2**

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output or max. velocity is not attained (continued)

yes

Does the throttle valve open all the way?
● Are the accelerator pedal, the accelerator linkage, the accelerator cable O.K.?

no

- The accelerator linkage can stick due to the carpeting.
- If the accelerator cable is crimped, take it out and replace it.

yes

Continued on L5/L6

L3

Insufficient max. power output
Peugeot 505 Ti-Turbo



L4

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output or max. velocity is not attained (continued)

yes

Is the throttle valve switch O.K.?

- Does the length of the fuel-injection pulse change at idle when Term. 3 and Term. 18 (throttle valve switch) are jumped, or when Term. 3A and Term. 3B are jumped. (Full-load charge-air pressure switch)?

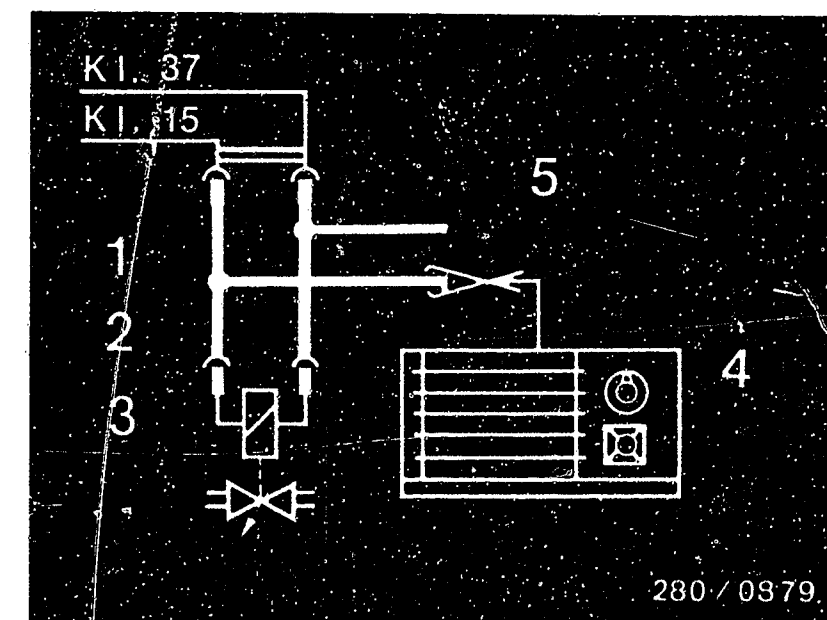
no

- Connect the test lead as follows:
Insert the two-pole plug connections of the test lead between one electric fuel-injection valve and its connecting lead.
Of the two other connecting terminals of the test lead, only join one with the special input on the motortester.
- Caution!
The free connection terminal must not come into contact with the vehicle ground!

yes

Continued on L9/L10

Continued on L7/L8



- 1=Connection plug for the valve lead
- 2=Test lead 1 684 463 093
- 3=Electric fuel-injection valve
- 4=Motortester
- 5=free connection (do not ground!)

L5

Insufficient max. power output
Peugeot 505 Ti-Turbo



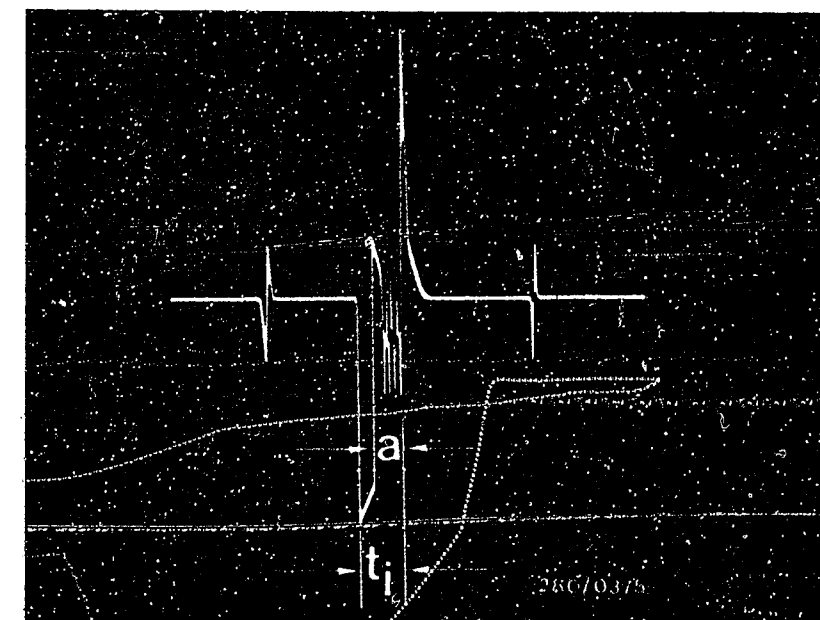
L6

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output or max. velocity is not attained (continued)

- If correctly connected, the fuel-injection pulse for a current-controlled output stage as shown at the right appears on the oscilloscope at speeds above idle speed. Using the test lead, the fuel-injection pulses can be checked on the electric fuel-injection valves with an ignition oscilloscope while the engine is running.
 - Watch the fuel-injection pulses at idle. Disconnect the throttle valve switch-connection plug and jump Term. 3 and Term. 18 (insulated jumper cable). Jump the full-load charge-air pressure switch Term. 3A and 3B.
- N. B.!
- Do not bend any plug blades. The fuel-injection pulse must become longer. If not: check the connecting leads from the control unit plug to the 10 k Ω resistor, the full-load charge-air pressure switch, and the throttle valve switch (Term. 3A, Term. 3B. Term. 3, and Term. 18) for continuity. If O.K., take out and replace the control unit.



Fuel-injection pulse for a current-controlled output stage
a=Pulse length dependent on the engine load)
 t_i =Fuel-injection pulse
At idle, with no engine load, the current control is not yet visible on the oscilloscope

yes

Continued on L9/L10

L7

Insufficient max. power output
Peugeot 505 Ti-Turbo



L8

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output (continued)

yes

Injection valves mechanically and hydraulically O.K.?

- Does engine speed drop when injection-valve connectors are pulled off one by one?
- O-ring O.K.?
- Repair injection valves.

no

- **Mechanical and hydraulic check of injection valves:**
Let warmed-up engine run (+80°C). One after the other, disconnect injection-valve connectors from injection valves and plug on again. Engine speed must:
 1. remain virtually constant if injection valve defective.
 2. drop noticeably if injection valve O.K. Wait for constant engine speed. Replace defective injection valve.

Caution:

If changing injection valves, install injection valve 0 280 150 200. If injection valves O.K. but O-rings defective, proceed as follows:

● Repair instructions

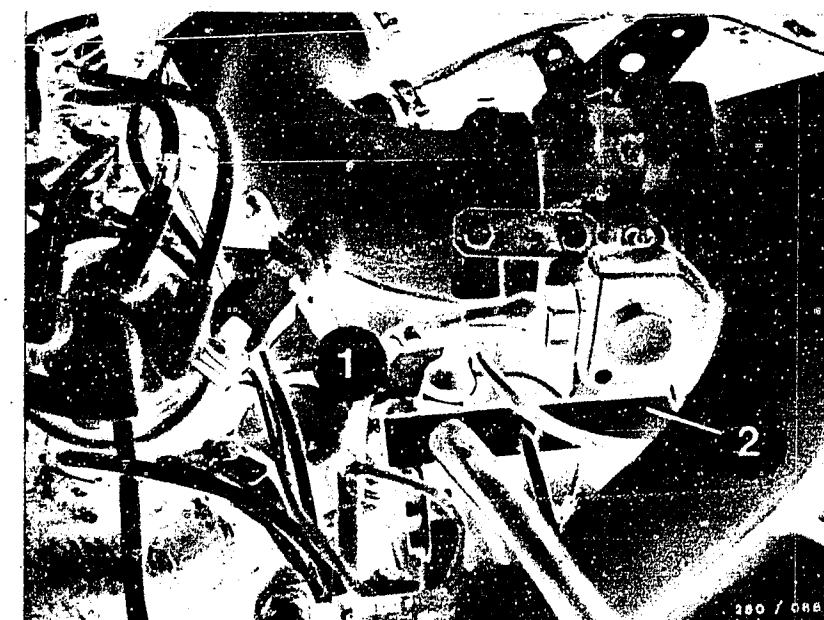
Remove fuel-distribution pipe. Disconnect electrical connection. Carefully slide holding clamps out of grooves and pull injection valve out of fuel-distribution pipe.

Caution:

Catch escaping fuel. Do not allow to drip onto hot parts of engine (fire hazard). Protective sleeve must not be levered off.

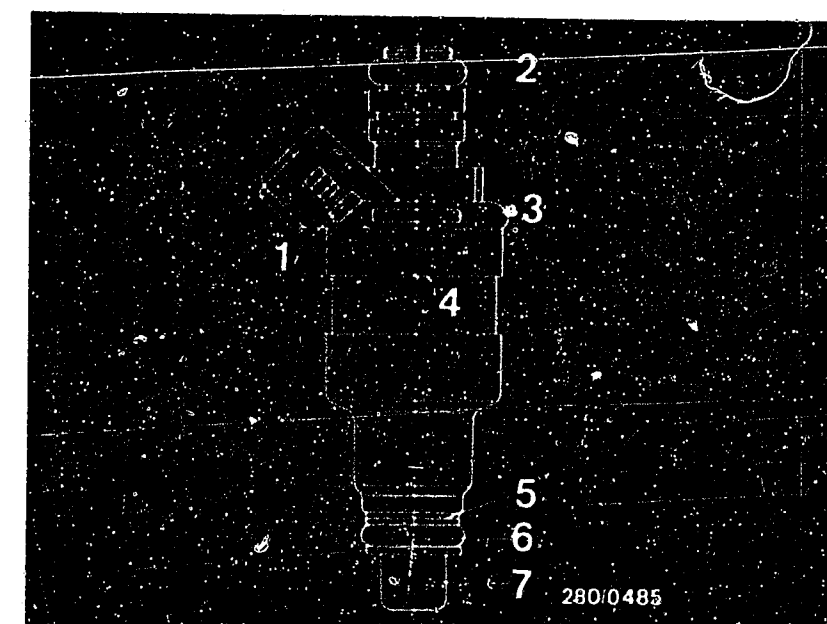
yes

Continued on L11/L12



1=Injection valve
2=Fuel-distribution pipe

- 1=FD mark
2=Upper O-ring
3=Part number
4=Injection valve
5=Supporting plate
6=Lower O-ring
7=Protective sleeve



L9

Insufficient max. power output
Peugeot 505 Ti-Turbo



L10

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output (continued)

yes

Repairing electric fuel-injection valves.

- Are the protective sleeve and the O-ring O.K.?

no

Cut the bottom O-ring (intake manifold) to pieces. Caution! Do not damage the protective sleeve. Pull a new O-ring over the protective sleeve and its shoulder. Do not damage any parts in so doing. Use set of parts 1 287 010 704. When working on the electric fuel-injection valves, do not damage the valve needle. If the top O-ring (fuel distribution pipe connection) is swollen or damaged, it must also be taken out and replaced.

G e n e r a l :

W a r n i n g :

Before installing, both O-rings may be greased only lightly.

(Silicone grease Ft 2 v 1).

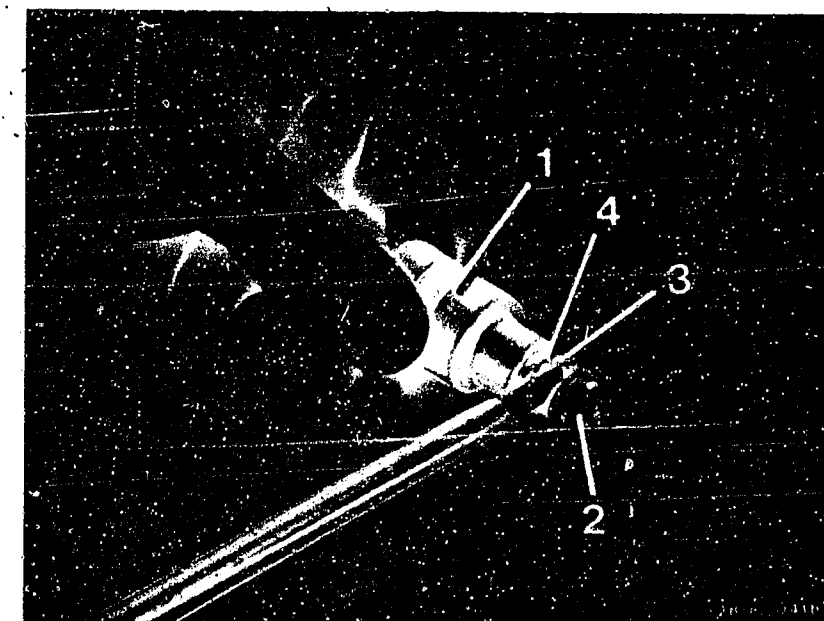
The other parts of the injection valve must remain free of grease.

C a u t i o n :

After testing, re-establish the original condition of installation.

yes

Continued on L13/L14



1=Electric fuel-injection valve
2=Protective sleeve
3=bottom O-ring
4=Support disc

L11

Insufficient max. power output
Peugeot 505 Ti-Turbo



L12

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output or max. velocity is not attained (continued)

yes

Is the fuel delivery of the electric fuel pump O.K.?

Test specifications:
min. 750 cm³/30 s

no

- Measure the fuel delivery:
For testing, release the return hose from the pressure regulator and connect a separate hose line. Direct the end of the hose into a 5 l container with a measuring scale. Disconnect the control relay. Insert the jumper into the connection socket between Term. 87b and Term. 30. The electric fuel pump must run.
Test specification:

min.: 750 cm³/30 s

N. B.!

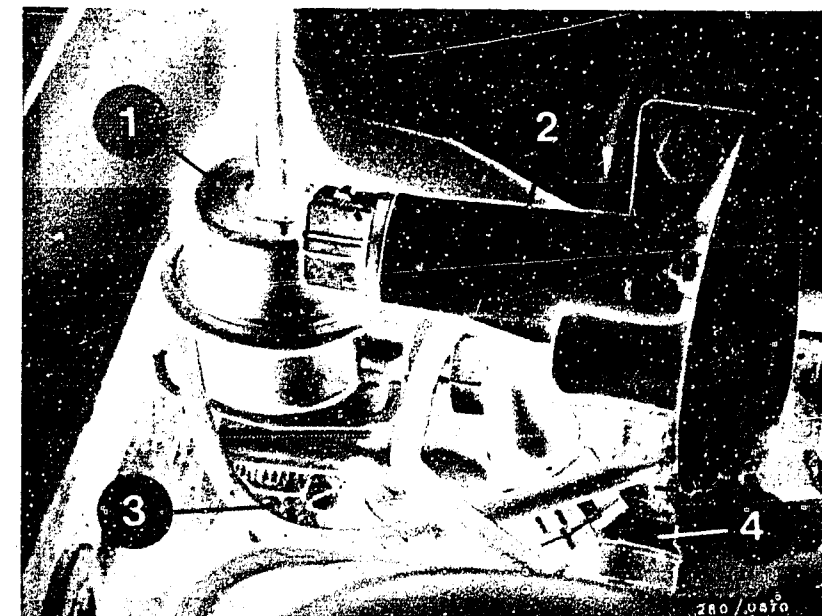
Be absolutely certain to remove the jumper after completion of the test!

Corrective action if test specification is not attained:

- Fuel filter is clogged: Take it out and replace it.
- Is the voltage at the connection terminals for the electric fuel pump with the engine running: min. 12 V ? If not, clean the contacts, eliminate any poor ground connection, take out and replace the leads.
- Delivery: min. 850 cm³/30s
The fuel pressure regulator is defective:
- take it out and replace it (using set of parts 1 287 010 704).
- If the fuel delivery is too small, take out and replace the electric fuel pump.

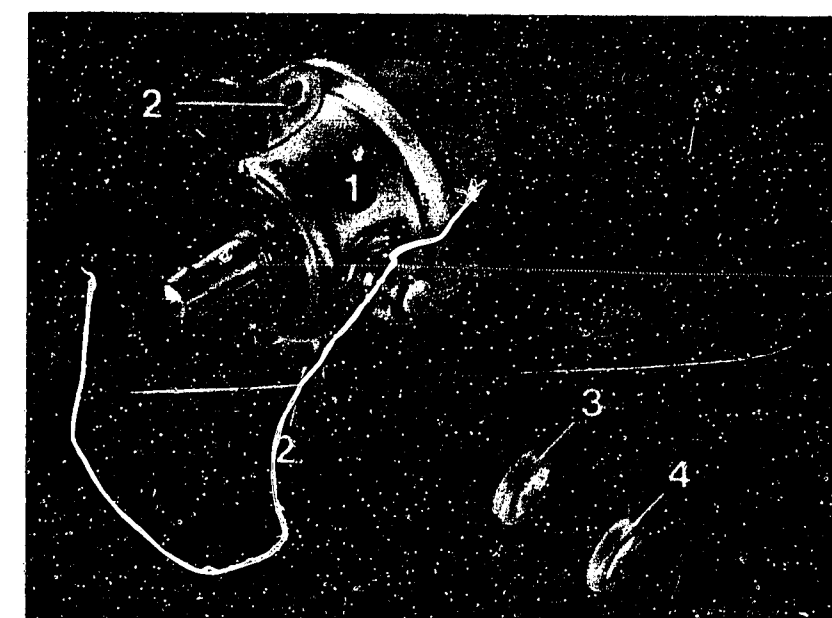
yes

Continued on L15/L16



1=Pressure regulator
2=Auxiliary-air device
3=Return hose
4=Electric fuel-injection valve

1=Pressure regulator
2=Fastening holes
3=Flat ring } Set of parts
4=O-ring } 1 287 010 704



L13

Insufficient max. power output
Peugeot 505 Ti-Turbo



L14

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output or max. velocity is not attained (continued)

yes

Is the air-flow sensor O.K.
mechanically and electrically?

- Does air-flow sensor flap move freely?
- Does air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerance?

Between Term. 8 and Term. 9:

140...280 Ω

Between Term. 7 and Term. 6
(deflect the air-flow sensor flap):

80...1000 Ω

no

Checking:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap manually. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must close again down to the stop by itself. The air-flow sensor flap must not stick during opening. Watch for scraping marks. If the air-flow sensor is severely fouled inside, clean it and rub it out with lint-free cloth. If there are scraping marks present, take out and replace the air-flow sensor.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specifications: 140...280 Ω
Connect the ohmmeter to Term. 7 and Term. 6 of the air-flow sensor, and deflect the air-flow sensor flap.
Test specifications: 80...1000 Ω

N. B.! After completion of the test, the air-flow sensor must be screwed back on to the air filter housing.

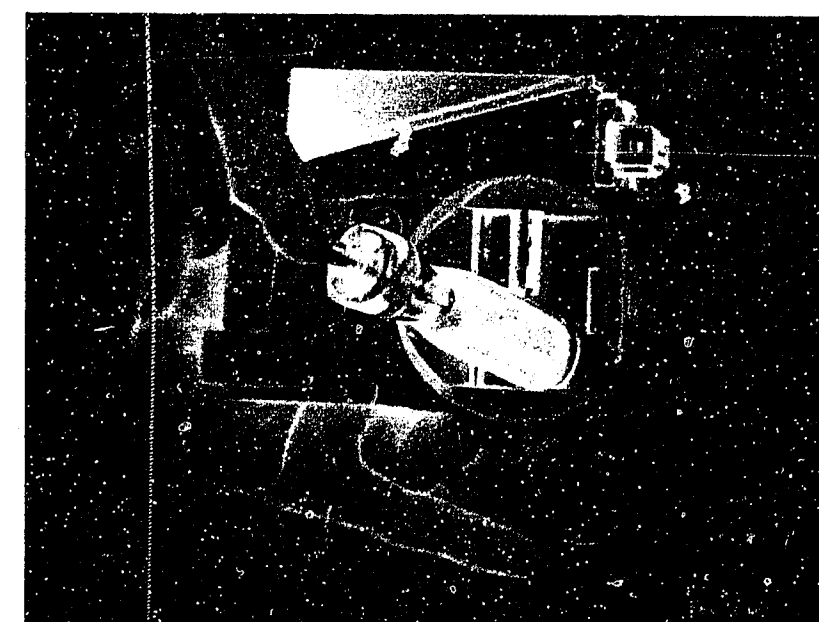
yes

Continued on L17/L18



1=Air-flow sensor
2=CO-adjusting screw

Press on the sensor flap in the air-flow sensor.



L15

Insufficient max. power output
Peugeot 505 Ti-Turbo



L16

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output or max. velocity is not attained (continued)

yes

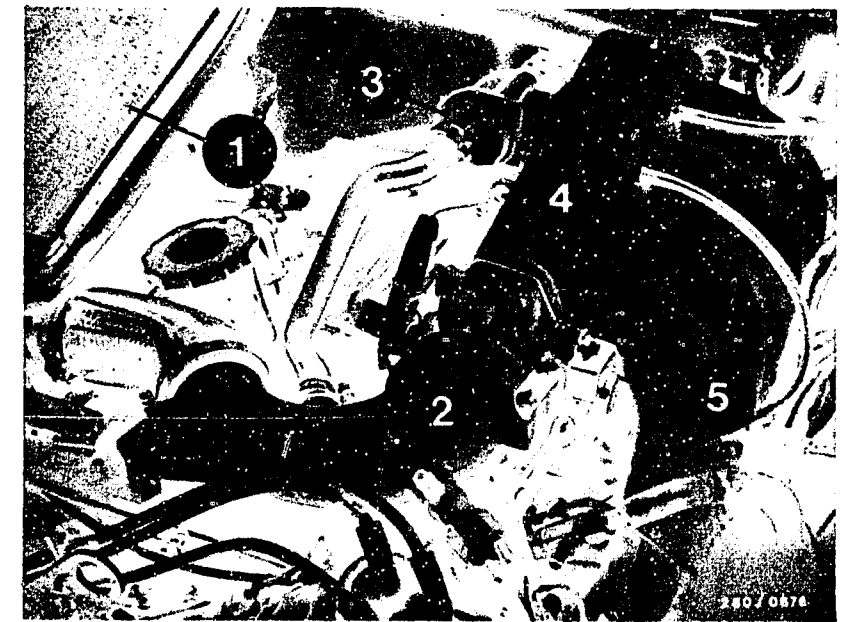
Are all hose lines put on correctly, not crimped or damaged?
Visual inspection.
Has air intake system been checked for leaks at 0.3 bar overpressure?

no

- Check if the hoses for the air intake system and the fuel line system are put on correctly, and that they are not crimped or damaged. If need be, take out and replace hoses. Eliminate leaks by using new gaskets or by tightening the connecting screws.
- Testing for leaks:
Seal off the exhaust pipe. Unscrew the air-flow sensor from the air filter housing and seal the air-flow sensor channel. Remove the hose after the auxiliary-air device and using a compressed air gun, blow air (0.3 bar overpressure) into the intake manifold. Seal off the auxiliary-air device connection. In so doing, open the throttle valve completely. Brush or spray soapy water on all junction points. Leaks can also occur at the following points on the engine: oil dip-stick not stuck in firmly, defective cover seal on the oil filling fixture, etc. Bubbling or foaming indicates leaks.

yes

Continued on L19/L20



- 1=Charge-air cooler
2=Throttle valve assembly
3=Auxiliary-air device
4=Intake manifold
5=Throttle valve switch

L17

Insufficient max. power output
Peugeot 505 Ti-Turbo



L18

Insufficient max. power output
Peugeot 505 Ti-Turbo



Insufficient max. power output or max. velocity is not attained (continued)

yes

Trouble-shooting program for the customer complaint

"Insufficient max. power output, or max. velocity is not attained"

has been completed.

Has the defect been eliminatedP

no

Further possible defects:

- Customer complaint incorrectly identified (see Coordinates B3...B8). If the defect has not been identified using the "Targeted trouble-shooting chart", see the "Detailed trouble-shooting chart" (Coordinates B3/B4).
- Engine is not O.K. mechanically (compression, valve setting, valve timing, camshaft wear).

L19

Insufficient max. power output
Peugeot 505 Ti-Turbo



L20

Insufficient max. power output
Peugeot 505 Ti-Turbo



IDLE SPEED AND CO-LEVEL TOO LOW OR TOO HIGH

Trouble-shooting program according to customer complaint

How to use this program

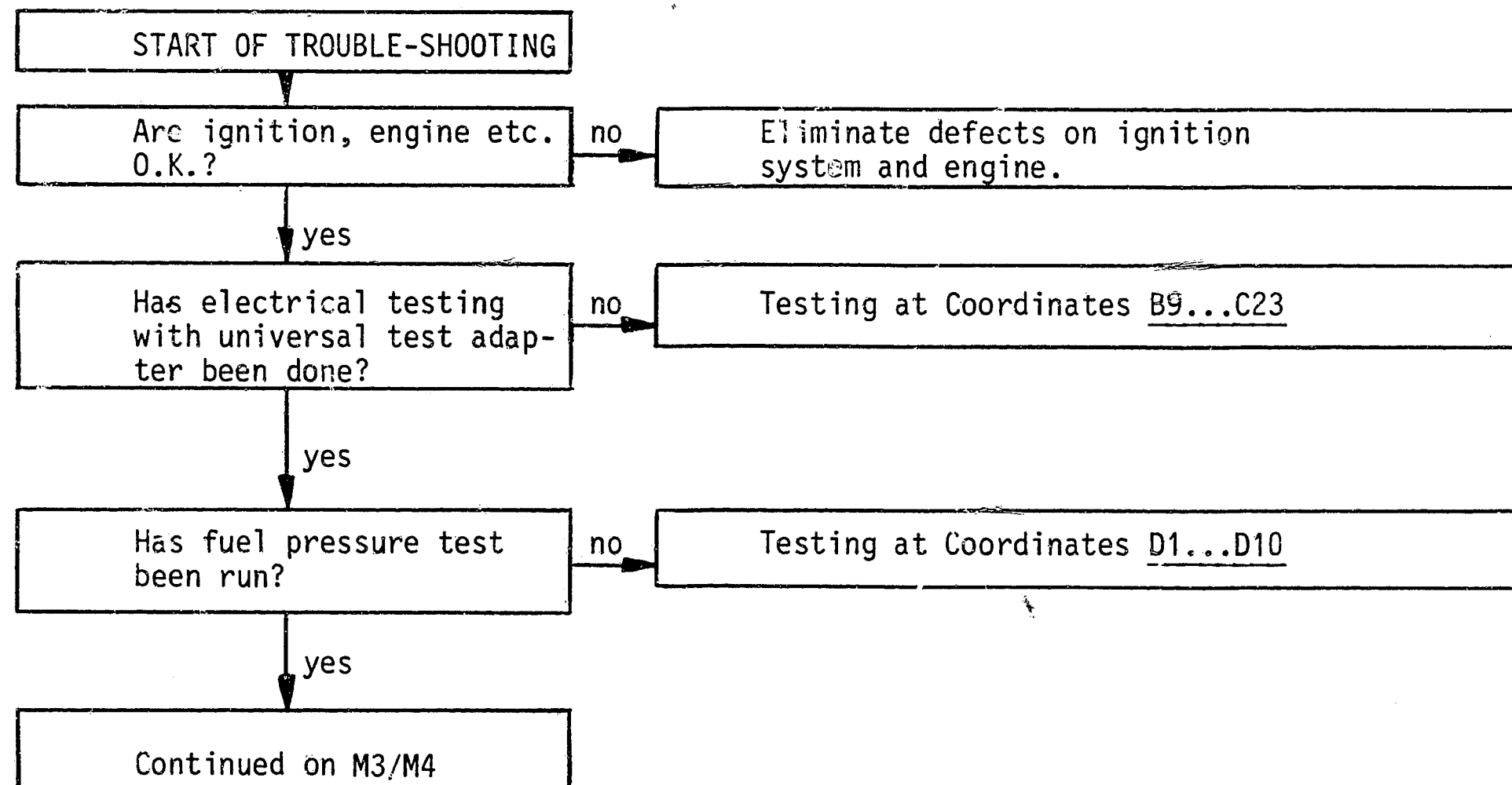
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If it is possible to answer the questions "yes" even without a test, proceed to the question next following.

On the other hand, if the answer to the question is "no", and a defect is suspected, you must shift to the series of boxes in the center and perform the tests indicated there.

After completion of the test, the trouble-shooting is continued at that point at which the shift was made.

**M1**

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo

**M2**

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



Idle speed and CO-level too low or too high (continued)

yes

Have idle speed and CO been correctly adjusted?

no

- Idle-speed and CO adjustment
Exhaust-gas adjustment with exhaust-gas analyzer with engine at normal op. temp. (approx. +80°C) and at idle speed.
On vehicles of Sweden and Switzerland version render EGR system inoperative for the idle adjustment.

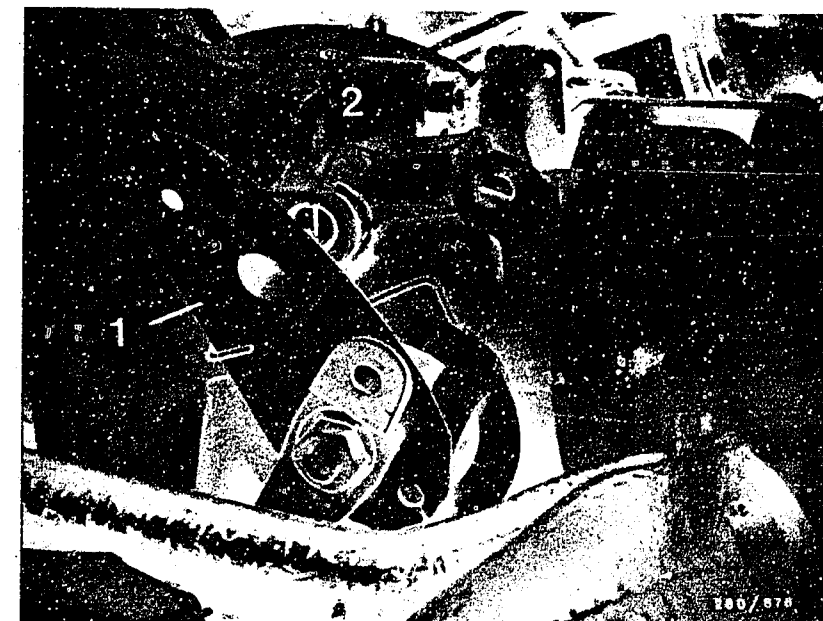
- Idle speed 850...950 min⁻¹
- CO-level 0.5...1.5 vol. %

For all vehicles:

If the CO-component is too high, adjust the CO-adjusting screw in the air-flow sensor one half turn counterclockwise. (Socket hex screw, AF = 5 mm). Re-check the idle speed and the CO-level. If need be, make corrections in several steps. After the adjustment, use a new, red plug (1 280 508 012).

yes

Continued on M5/M6



1=Throttle valve lever
2=Idle-speed-adjusting screw



1=Air-flow sensor
2=CO-adjusting screw

M3

Idle speed and CO-adjustment
Peugeot 505 Ti-Turbo

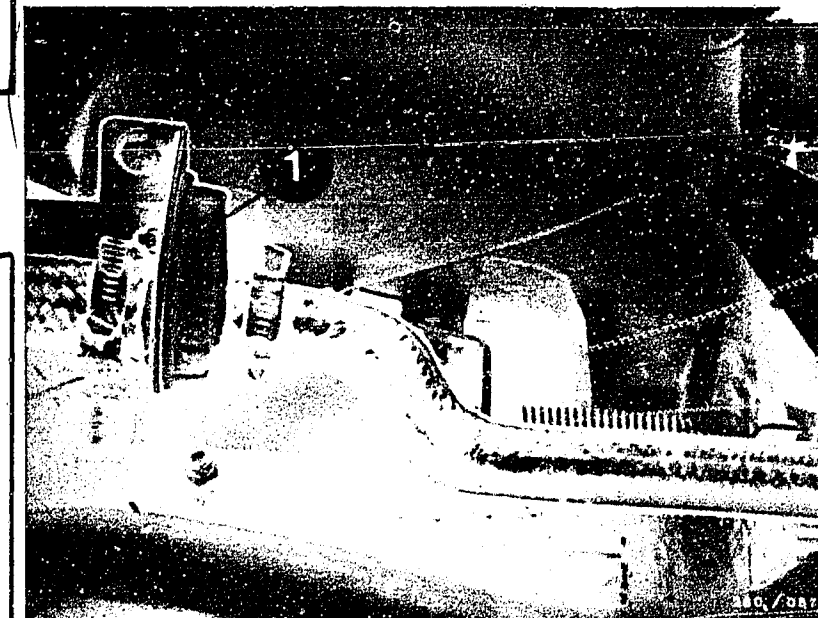


M4

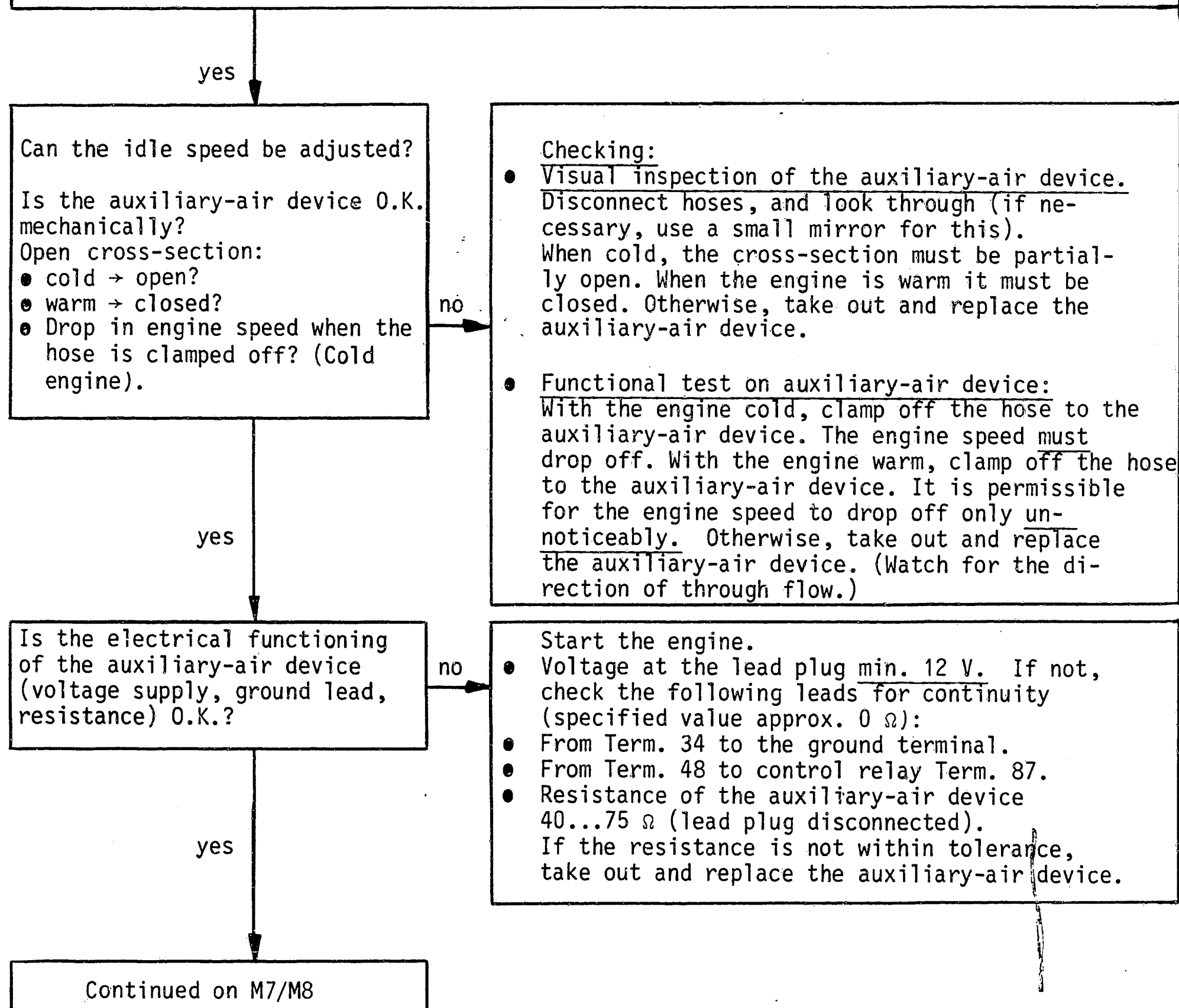
Idle speed and CO-adjustment
Peugeot 505 Ti-Turbo



Idle speed and CO-level too low or too high (continued)



1=Auxiliary-air device



M5

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



M6

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



Idle speed and CO-level too low or too high (continued)

yes

Is the air-flow sensor O.K.
mechanically and electrically?

- Does air flow sensor flap move freely?
- Does air-flow sensor flap return to its at rest position?
- Are the resistance values within tolerance?

Between Term. 8 and Term. 9:

140...280 Ω

Between Term. 7 and Term. 6
(deflect the air-flow sensor flap):

80...1000 Ω

no

Checking:

- Unscrew the air-flow sensor from the air filter housing. Open the air-flow sensor flap manually. It must be possible to open the air-flow sensor flap with uniform ease as far as the stop, and the flap must close again down to the stop by itself. The air-flow sensor flap must not stick during opening. Watch for scraping marks. If the air-flow sensor is severely fouled inside, clean it and rub it out with lint-free cloth. If there are scraping marks present, take out and replace the air-flow sensor.
- The air-flow sensor flap must return to its at rest position. If not, the stopper or the air-flow sensor flap is bent. The air-flow sensor must be taken out and replaced.
- Connect an ohmmeter to Term. 8 and Term. 9 of the air-flow sensor.
Test specification: 140...280 Ω
Connect the ohmmeter to Term. 7 and Term. 6 of the air-flow sensor, and deflect the air-flow sensor flap.
Test specifications: 80...1000 Ω

N.B.). After completion of the test, the air-flow sensor must be screwed back on to the air filter housing.

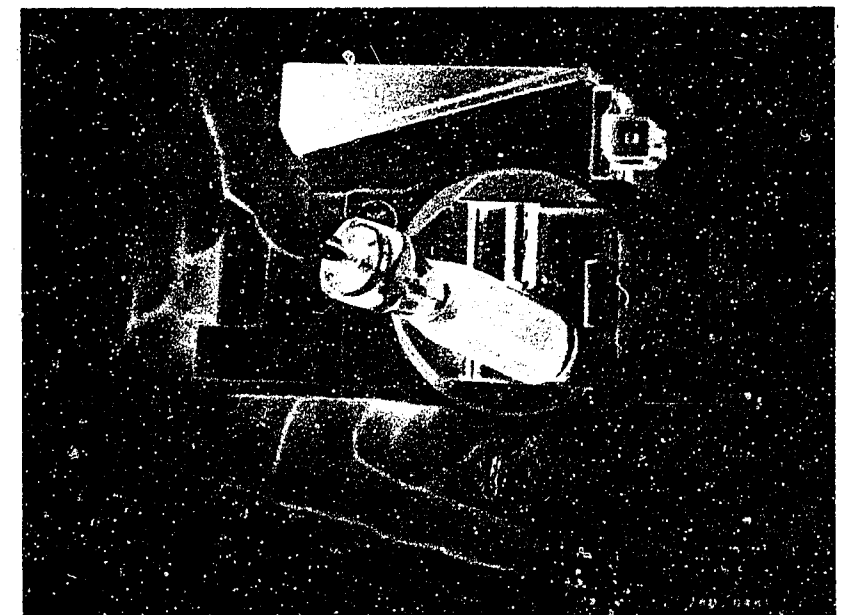
yes

Continued on M9/M10



1=Air-flow sensor
2=CO-adjusting screw

Press on the sensor flap in the air-flow sensor.



M7

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



M8

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



Idle speed and CO-level too low or too high (continued)

Measured value for CO less than test specification
max. 1.5 vol. % CO

Start valve, leaking?

- Max. allowable 1 drip/min.

no

- Check the electric starting valve for leaks:
Take out the electric starting valve
(Caution: fire hazard!) Fuel and electrical lines are connected. (Set up a catch basin under the electric starting valve). Build up fuel pressure, by jumping the safety circuit. Insert a jumper between Term. 87B and Term. 30 in the connection socket of the control relay.

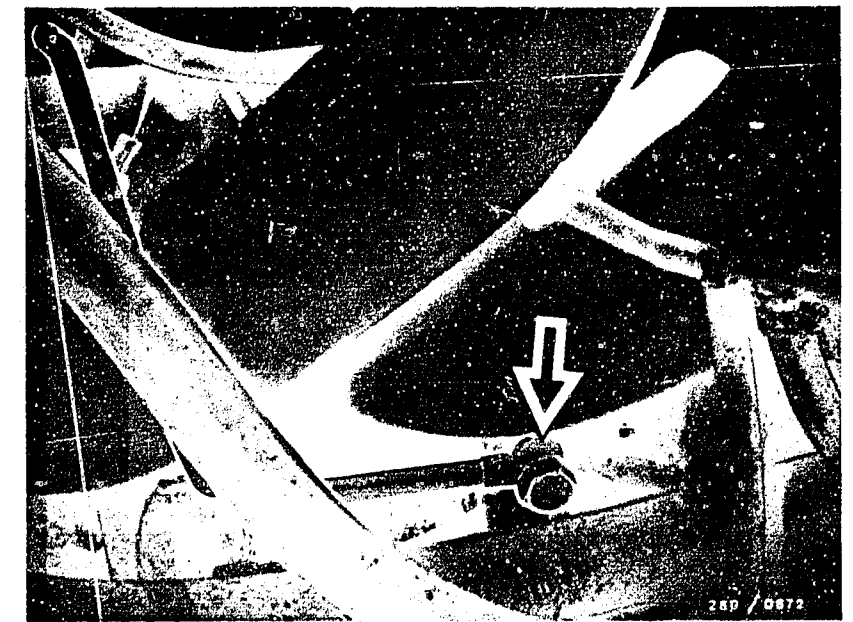
Test specification: A max. of 1 drop is allowable at the valve opening within one minute.

N. B.!

When the test is completed, remove the jumper and plug the control relay into the connecting socket.

yes

Continued on M11/M12



Arrow=Electric starting valve

M9

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



M10

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



Idle speed and CO-level too low or too high (continued)

yes

Is the value measured for CO
above the test specification?

0.5 vol. % CO

Has the air intake system been
checked for leaks?

- Have the hose lines been put
on correctly, without crimping
or damage?

no

- Check if the hoses for the air intake system
and the fuel line system are put on correctly,
and that they are not crimped or damaged.
If need be, take out and replace hoses.
Eliminate leaks by using new gaskets or by
tightning the connecting screws.

• Testing for leaks:

Seal off the exhaust pipe. Unscrew the air-
flow sensor from the air filter housing and
seal the air-flow sensor channel.
Remove the hose after the auxiliary-air device
and using a compressed air gun, blow air
(0.3 bar overpressure) into the intake mani-
fold. Seal off the auxiliary-air device
connection. In so doing, open the throttle
valve completely. Brush or spray soapy water
on all junction points. Leaks can also occur
at the following points on the engine: oil
dip-stick not stuck in firmly, defective
cover seal on the oil filling fixture, etc.
Bubbling or foaming indicates leaks.

yes

Trouble-shooting program for
the customer complaint

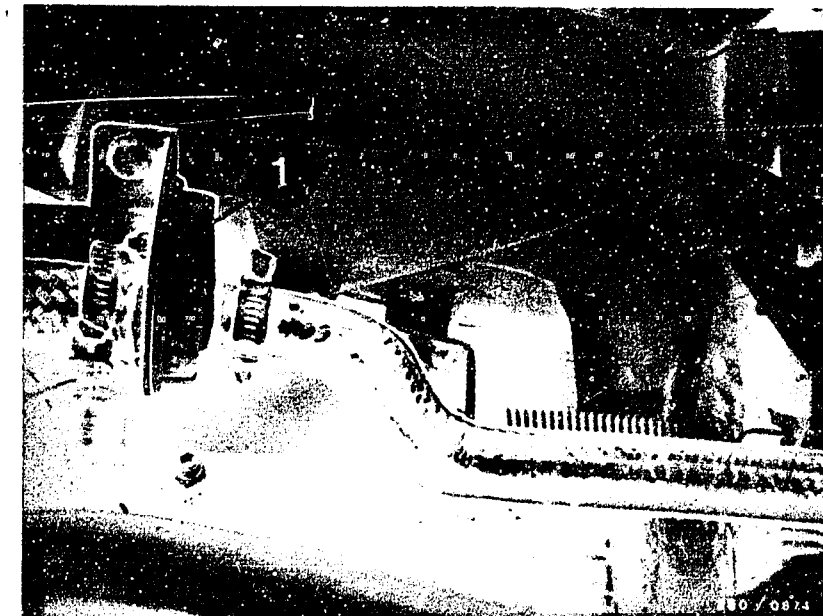
"Idle speed and CO-level too
low or too high"

has been completed.

Has the defect been elimina-
ted?

Further possible defects:

- Customer complaint incorrectly identified
(see Coordinates B3...B8). If the defect has
not been identified using the "Targeted
trouble-shooting chart", see the "Detailed
trouble-shooting chart" (Coordinates B3/B4).
- Engine is not O.K. mechanically (compression,
valve setting, valve timing, camshaft wear).



1=Auxiliary-air device

M11

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



M12

Idle speed and CO adjustment
Peugeot 505 Ti-Turbo



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28

MOBILE AND BUILT-IN RADIO TRANSMITTERS IN VEHICLES WITH L-/LE-JETRONIC

VDT-I-280/106 En

Effect on engine operation and corrective
corrective actions

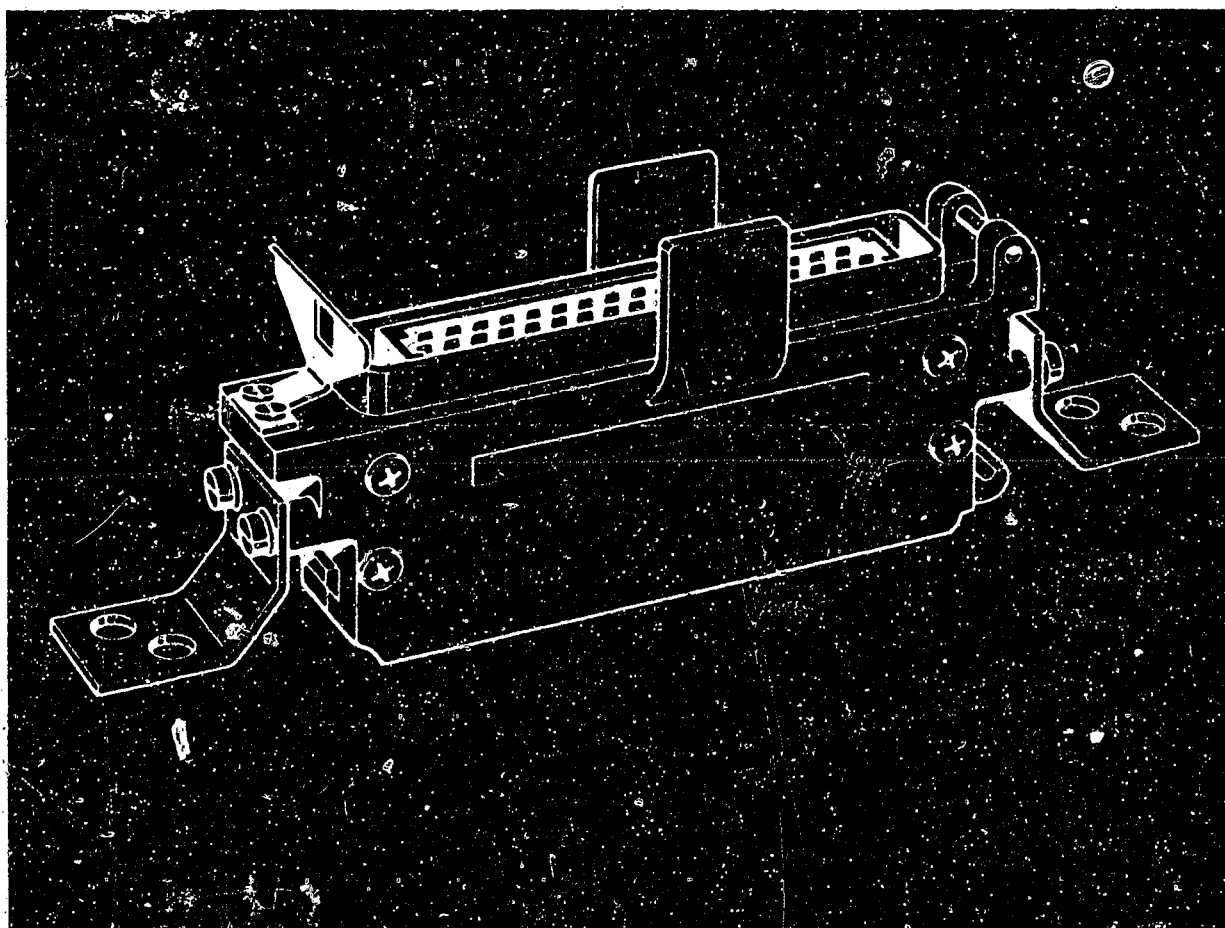
9.1984

(Replaces Ed. 4.1981)

If problems occur in driving (engine shakes, cuts out, etc.) in vehicles equipped with the L-Lor LE-Jetronic in which permanently installed or mobile radio transmitters are being operated, the following actions can be taken to correct such problems:

- Bridge over the hinges on the engine hood and the trunk compartment cover using a flexible copper grounding tape (good ground connection!).
- Ground the base of the aerial neatly to the chassis using a copper grounding tape.
- Locate the radio aerial and the transmitter as far as possible away from the Jetronic control unit in the vehicle.
- Match the transmitter to the radio aerial with as small a reflection coefficient as possible.
- Avoid routing the cable for the transmitter power supply and the aerial parallel to the Jetronic wiring harness (risk of coupling and cross-talk).





If problems persist in spite of the corrective actions above, the degree of interference suppression can be further improved by inserting the suppression connector D 280 208 091 (L-Jetronic) or D 280 208 280 (LE-Jetronic) between the wiring harness plug and the Jetronic control unit.

Ordering

- 1: Within Federal Republic of Germany: Order the suppression connectors from KH/VKD 2 via Bosch Franchised Wholesaler.
- 2: Outside Federal Republic of Germany: Authorized representative please order from KH/VKD 2 using order form "DB11".

Prices On request

Issued by:

Robert Bosch GmbH
Division KH

Technical After-Sales Service (KH/VKD 2)

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After-sales Service

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DETERMINATION OF THE TEMPERATURE VALUES
GIVEN IN L-JETRONIC MANUALS

VDT-I-280/108 En
5.1982

We have recently been asked with increasing regularity how accurately the engine temperature must be measured when trouble-shooting on the vehicle.

So far in its L-Jetronic manuals KH/VSK has given three or four different temperatures for testing the temperature sensor:

-10 °C, +20 °C, +40 °C and +80 °C,

and two ranges for the thermo-time switch e.g. 35 °C 8 sec.

below +30 °C and above +40 °C.

Since the temperature range need not be subject to such close tolerances, we propose in future the following more appropriate definition:

- Ambient temperature (approx. +15 °C to +30 °C)
- Engine at normal operating temperature (approx. +80 °C).

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Geschäftsbereich KH - Kundendienst, Kfz-Ausrüstung
by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

N3

Technical Bulletin

Peugeot 505 Ti-Turbo



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28

PLUG CONNECTORS FOR
JETRONIC COMPONENTS
Parts sets

VDT-I-280/111 En

11.1984

(supersedes edition 11.1982)

Parts sets are available for replacement of Jetronic plug connectors. These consist of:

- Plug connector housing
- Protective cap (rubber sleeve)
- Contact springs

These parts are listed on microfiche EE...*.

* see microfiche EE00 under 0 280 ..

- Plug, black, 2-pin,
parts set 1 287 013 002 cable connector in conjunction with socket, 2-pin

- Socket, black, 2-pin,
parts set 1 287 013 001 for e.g.

Temperature sensor	0 280 130 0..
Auxiliary-air device	0 280 140 ..
Thermo-time switch	0 280 130 2..
Start valve	0 280 170 ..
Warm-up regulator	0 438 140 ..

- Socket, grey, 2-pin
parts set 1 287 013 003 for:

Solenoid-operated injection valve	0 280 150 ..
--------------------------------------	--------------

N4

Technical Bulletin

Peugeot 505 Ti-Turbo



- Socket, black, 3-pin,
parts set 1 237 000 039 for:
Throttle-valve switch 0 280 120 ..
- Socket, black, 5-pin,
parts set 1 287 013 006 for:
Air-flow sensor 0 280 20. ..
(LE version)
- Socket, black, 6-pin,
parts set 1 287 013 004 for
Air-flow sensor 0 280 200 ..
- Socket, black, 7-pin,
parts set 1 287 013 005 for:
Air-flow sensor 0 280 20. ..
Air-mass sensor 0 280 211 ..
- Wiring-harness plug connector, black, 25-pin
parts set 1 287 013 009 for:
Control unit 0 280 0..
- Wiring-harness plug connector, black, 35-pin,
parts set 1 287 013 008 for:
Control unit 0 280 0..

The contact springs (minitimers) are also available separately under part no. 1 284 477 026.

The plug-connector housings are only available in the stated colours.

Responsible:

Robert Bosch GmbH

Division KH

Technical After-Sales Service (KH/VKD 2)

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After-sales Service

Motor Vehicle Service Information

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EXPORT VEHICLES WITH

EMISSION CONTROL SYSTEMS

VDT-I-Gen. 042 En.

12. 1981

K-Jetronic and L-Jetronic

Export vehicles for countries with stringent exhaust emission regulations are equipped with various emission control systems. To meet the legal requirements, these systems are installed either individually or in combination, depending on the model version.

Emission control system	installed predominantly in export vehicles				
	Sweden	Australia	Canada	USA	Japan
Exhaust-gas recirculation*	●	●	●	(●)	(●)
Secondary-air induction*	●	●	●	(●)	(●)
Secondary-air injection*	●	●	●	(●)	(●)
Catalytic converter*	-	-	-	●	●
Lambda closed-loop control	-	-	-	●	●

The vehicle-related After-Sales Service Instruction Manuals for the K-Jetronic and L-Jetronic describe the construction, function and operating principle of the emission control systems. The influence of these systems should be borne in mind particularly when adjusting the idle speed and CO concentration.

Export vehicles are sometimes also encountered in countries which do not have particularly stringent exhaust emission legislation. This Service Information publication summarizes the various emission control systems and provides information for the After-Sales Service in countries with exhaust emission legislation which does not require such emission control systems or unleaded fuel.

* Not made by Bosch

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Geschäftsbereich KH Kundendienst Kfz Ausrüstung
by Robert Bosch GmbH D-7 Stuttgart 1 Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

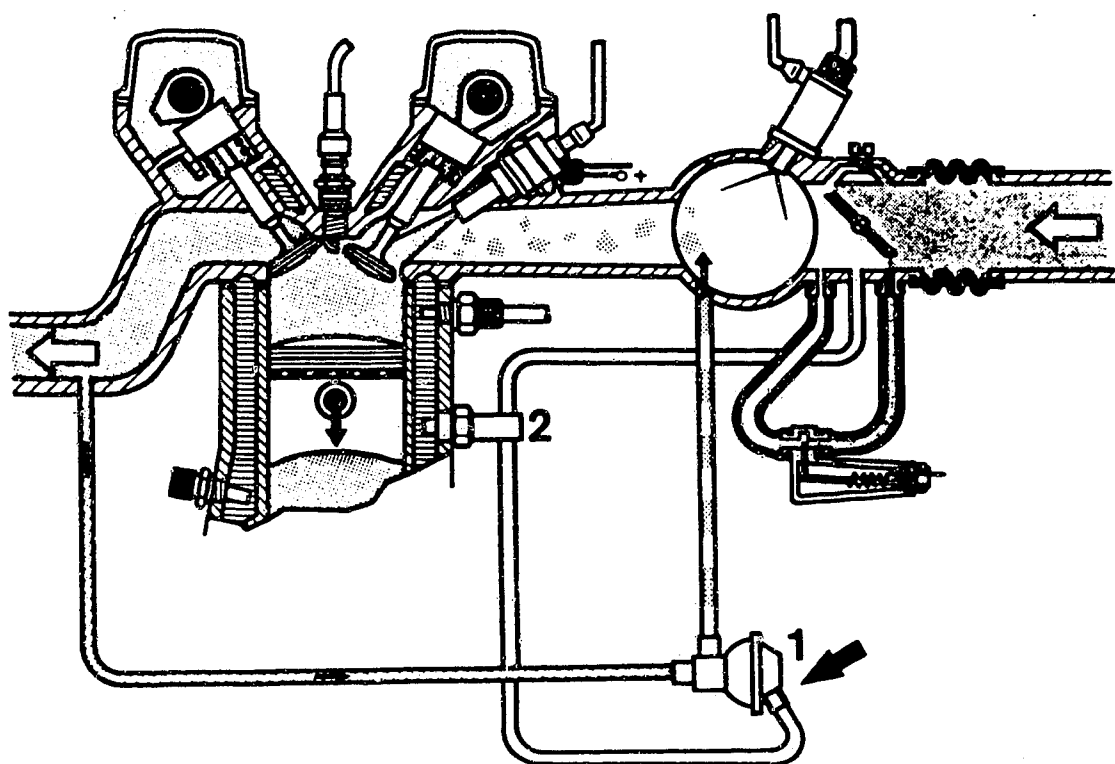
N6

Vehicle Service Information

Peugeot 505 Ti-Turbo



1. Exhaust-gas recirculation (EGR)



1 = Exhaust-gas recirculation valve

2 = Thermo-valve

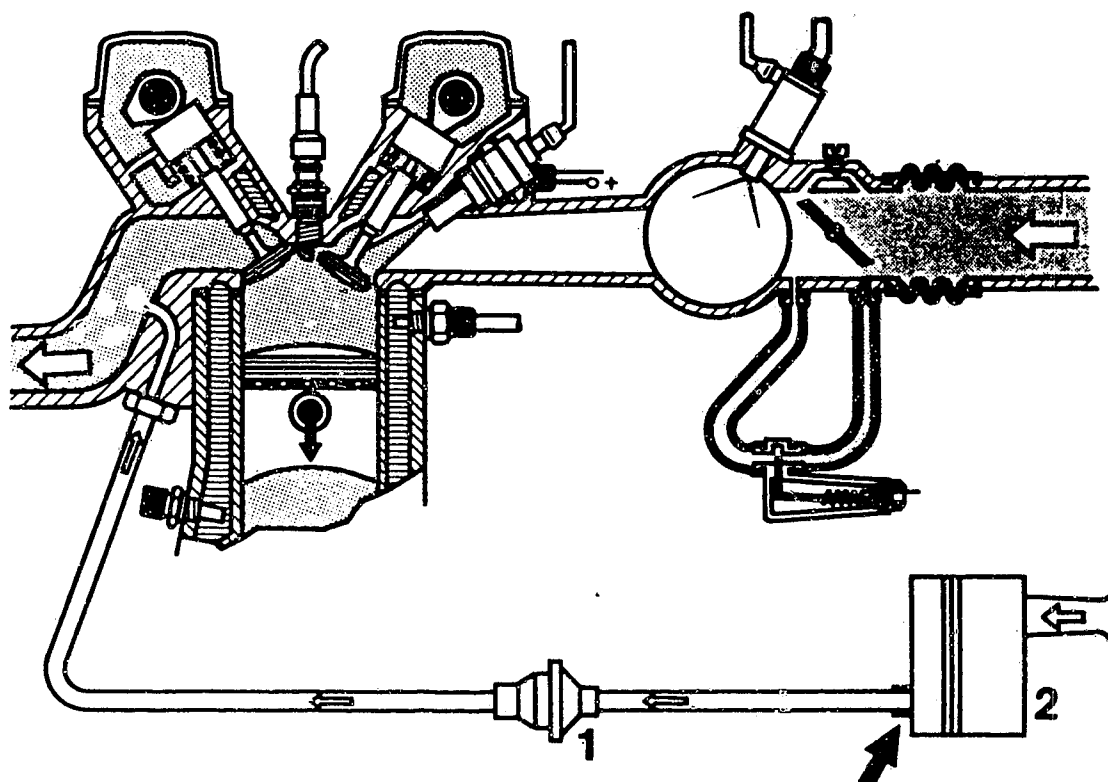
Some of the exhaust gas is returned to the intake manifold via a vacuum-controlled exhaust-gas recirculation valve. This recirculation of exhaust gas into the combustion chamber lowers the combustion temperature and reduces the emission of nitrogen oxides (NOx). The thermo-valve and the position of the vacuum tapping port on the throttle-valve assembly ensure that exhaust gas is only recirculated when the engine is warm and only at part load. There is a reduction in engine speed of about 200 min⁻¹. Exhaust-gas recirculation is inoperative at idle, full-load and when the engine is cold.

When testing or adjusting the idle speed and CO concentration, remove and seal off the vacuum control line (arrow) on the exhaust-gas recirculation valve in order to ensure that the exhaust-gas recirculation system is inoperative.

In countries without stringent exhaust emission legislation it is not necessary to shut down the system.



2. Secondary-air induction (e.g. Volvo Pulsair system)



1 = Non-return valve

2 = Air filter

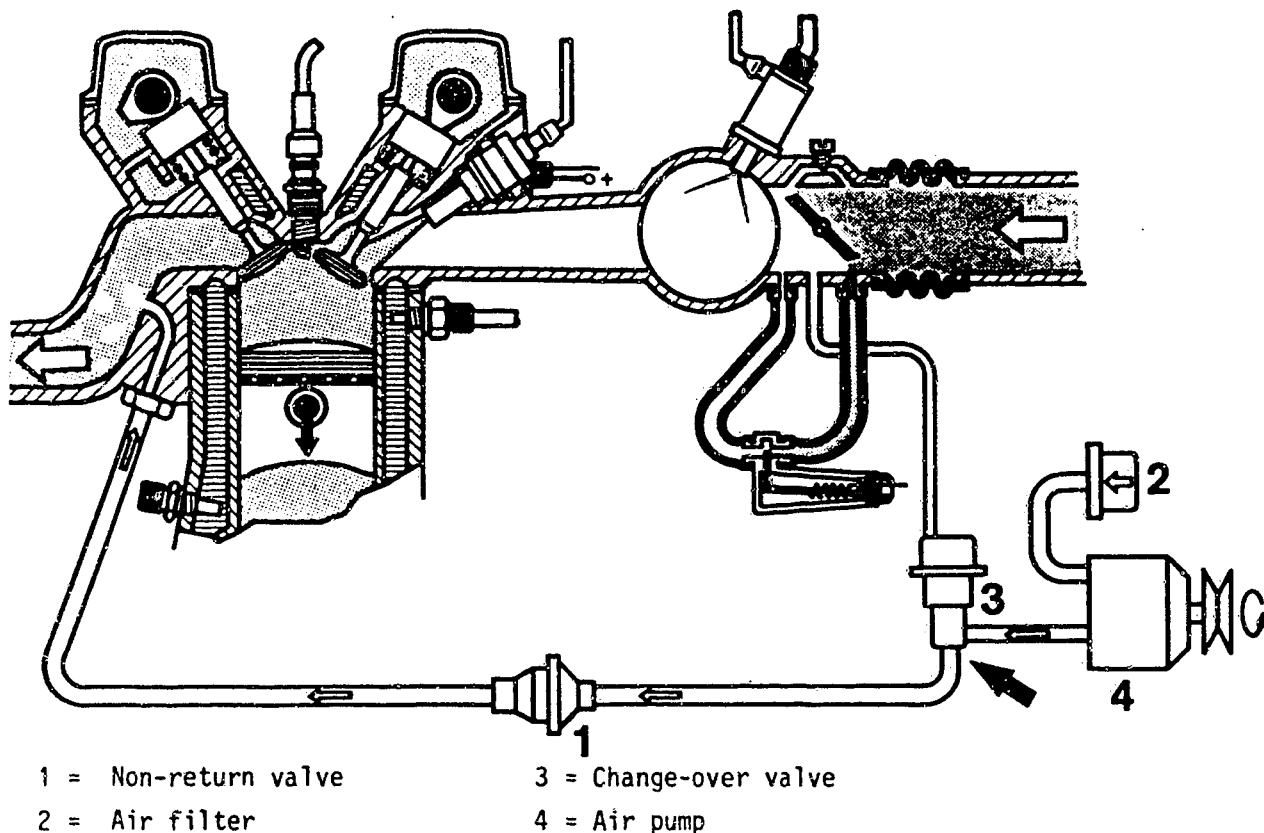
The pulsating alternation between overpressure and depression in the flow of exhaust gas inducts fresh air into the exhaust ports via a non-return valve. Unburned residues of carbon monoxide (CO) and hydrocarbons (HC) are partially after-burned, leading to fewer pollutants in the exhaust gas.

When testing or adjusting the idle speed and the CO concentration, the secondary-air induction system must be rendered inoperative. To do this, remove the hose between the non-return valve and the air filter (arrow) and seal off tight with a plug.

In countries without stringent exhaust emission legislation it is not necessary to shut down the secondary-air induction system.



3. Secondary-air injection



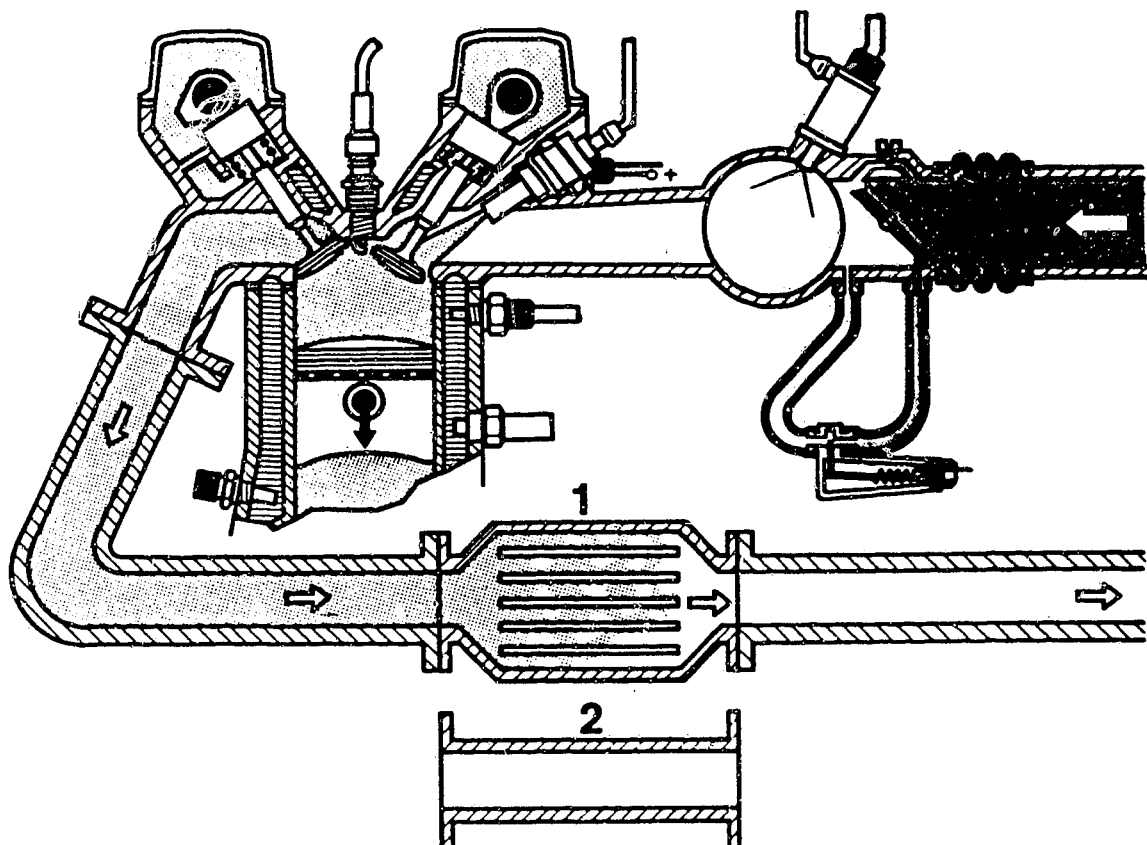
An air pump driven by the engine inducts fresh air through the air filter and forces it via a non-return valve into the exhaust ports. As in the case of secondary-air induction, there is a partial after-burning of the CO and HC residues. This makes the exhaust gas cleaner. A vacuum-controlled change-over valve controls the operation of the secondary-air injection system.

When testing or adjusting the idle speed and the CO concentration, shut down the secondary-air injection system. To do this, remove the hose from the outlet of the change-over valve (arrow) and seal off tight with a plug.

In countries without stringent exhaust emission legislation it is not necessary to shut down the secondary-air injection system.



4. Catalytic converter



1 = Catalytic converter

2 = Intermediate pipe

The single-bed catalyst installed in the exhaust system in export vehicles (also with lambda closed-loop control) reduces all three pollutants CO, HC and NO_x to a minimum. The catalytic surface triggers chemical reactions of the pollutants, rendering them non-toxic.

Important: Proper operation only possible in conjunction with unleaded fuel (at present only in USA and Japan).

When testing or adjusting the idle speed and the CO concentration, the catalytic converter can be neglected since the exhaust-measuring point is upstream of the catalyst.

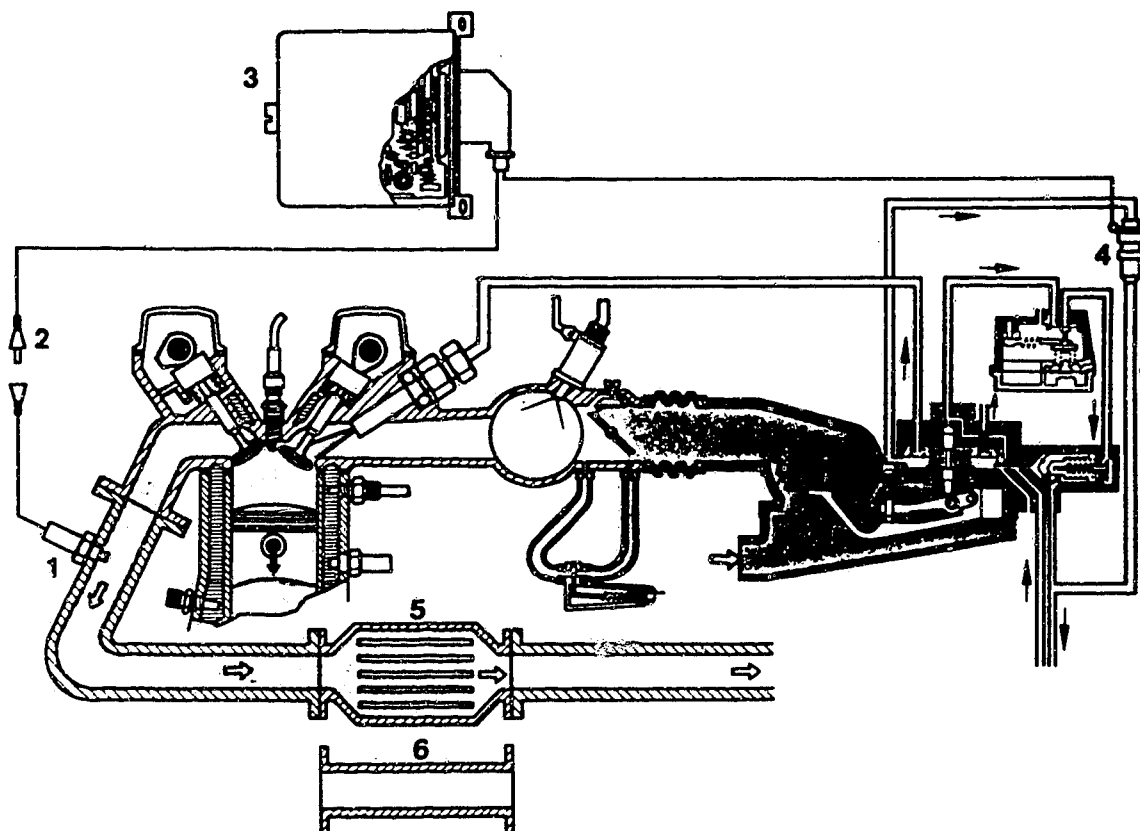
Caution!

If the vehicle is operated on leaded fuel (predominantly in countries without stringent exhaust emission legislation) the catalytic converter must be removed. If not removed, the catalytic converter would become clogged up and lead to a reduction in the power output of the engine.

Appropriate intermediate pipes for converting the exhaust system are available from the vehicle manufacturer.



5. Lambda closed-loop control



1 = Lambda sensor
2 = Plug

3 = Control unit
4 = Timing valve

5 = Catalytic converter
6 = Intermediate pipe

Export vehicles for the USA and Japan are equipped with lambda closed-loop control. This additional function of the K-Jetronic or L-Jetronic is not a downstream emission control system, but ensures a low pollutant content in the exhaust gas by means of optimum mixture preparation. Additional exhaust-gas recirculation, secondary-air induction or secondary-air injection is therefore not necessary in most cases. Like the catalytic converter, the lambda sensor (in the exhaust gas) operates only with unleaded fuel.

If the vehicle is operated on leaded fuel, the lambda sensor becomes clogged up and ceases to operate. The control unit detects this and switches from closed-loop to open-loop control. The system then operates on a fixed air-fuel ratio in the same manner as a K-Jetronic or L-Jetronic without lambda-closed-loop control. Before operating on leaded fuel, the lambda sensor should be removed and the installation hole should be closed off with a screw plug M18x1.5 (length of thread max. 8.5 mm). The disconnected plug (2) of the sensor connecting cable should be insulated and fastened to a suitable place on the vehicle body.

Caution!

Under no circumstances must the control unit or the timing valve be shut down on the lambda closed-loop control of the K-Jetronic.

The catalytic converter should be replaced by an intermediate pipe.

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Robert Bosch GmbH
Division KH
After-Sales Service Department
for Training and Technology
(KH/VSK)



When direct trouble-shooting a specific L-Jetronic component, it is absolutely essential to look up the respective test step under the customer complaint.

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Automotive Equipment - After-Sales Service

Department for Technical Publications KH/VDT,

Postfact 50, D-7000 Stuttgart 1.

Published by: After-Sales Service Department for
Training and Technology (KH/VSK). Press date: 3.1986.
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